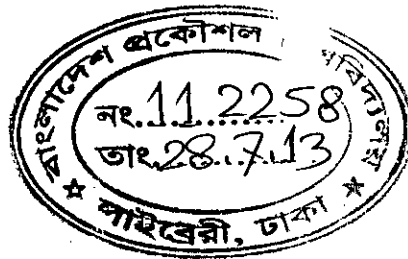


A thesis submitted
To the Department of Water Resources Engineering,
Bangladesh University of Engineering and Technology (BUET) for the partial
fulfillment of the degree of Master of Science (M. Sc) in
Water Resources Engineering.

Submitted by

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March 2013



Declaration

This thesis work has been done by the candidate herself and does not contain any material extracted from elsewhere or from a work published by any body else. The work of the thesis has not been presented elsewhere by the author for any degree or diploma. No other persons work has been used or included without due acknowledgement.

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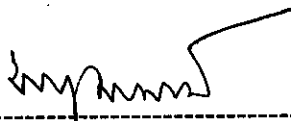
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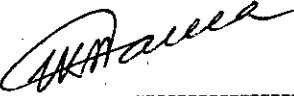
Certification of Thesis Work

This thesis titled "Study on probability distribution and trends of various climatic parameters in Bangladesh" submitted by Nadia Nowshin, Student No: 100716004F, session: October 2007 has been accepted as satisfactory in partial fulfillment of the requirement for the degree of Master of Science in Water Resources Engineering on March 20, 2013.


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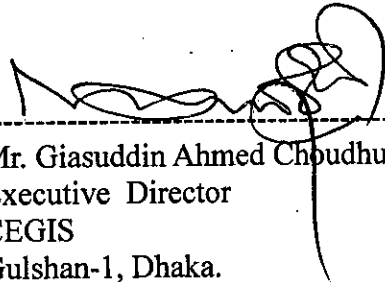
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Abstract

Probability Distribution and trend analysis are an important concern for a resource constraint country like Bangladesh. Reliable estimate of probability distribution and trend analysis with respect to various climatic parameters are a valuable guide for policy makers in determining return period and risk analysis of flood, drought, cyclones and other extreme climate events for the fixation of infrastructure required in future. Again, from trend analysis, gradual change of climatic phenomenon that is, global warming, global dimming, wetter summer, drier winter etc can be understood.

Standard set of monthly, annual and seasonal data of different climatologic parameters of different meteorological stations in Bangladesh are analyzed in this study have been collected from BMD (Bangladesh Meteorological Department) and BARC (Bangladesh Agricultural Research Council). Different climatologic parameters are rainfall, temperature, evaporation, relative humidity, bright sunshine hours, wind speed & solar radiation. Trend analysis and probability distribution study has been carried out to analyze the data series.

From trend analysis it can be understood that there is a gradual change of climatic phenomenon in Bangladesh over the last three decades. From the probability distribution study of different climatic parameters, it can be understood that, particular variable follows particular probability distribution. From the analysis of weighted average method, best fitted distribution has been fixed for a particular variable of a particular climatic parameter.

From the analysis of different climatic parameters, it has been predicted that Bangladesh is in the risk of climate change i.e. global warming due to increase in overall temperature. Again, increasing tendency of relative humidity along with increasing rate of rainfall in summer predominating wetter summer and decreasing tendency of relative humidity along with decreasing rate of rainfall in winter indicates drier winter.

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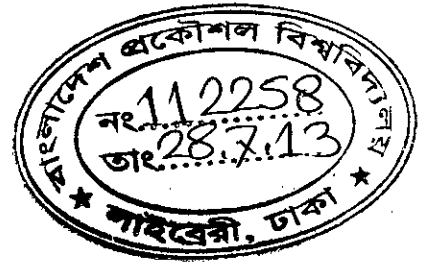
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Chapter 1 INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Probability distribution and trend analysis are an important concern for a resource constraint country like Bangladesh. Trend analysis and probability distribution study are useful to estimate design variables for hydraulic structures are uses like crop yield forecasting (Sarker et. al., 2012), predicting favorable and unfavorable climatic events. Valuable guide for policy makers in determining return period and risk analysis of flood, drought, cyclones and other extreme climatic events for the fixation of infrastructure required in future. From trend analysis, gradual change of climatic phenomenon that is, global warming, global dimming, wetter summer, drier winter etc can be understood.

Climate unpredictability and change in climatic parameters have direct influence on environment and human existence. A negative change in the climate, always have its corresponding dysfunctional impacts on man and the ecosystem globally or locally. Flooding, poor agricultural yields, famine, and even death are some of the catastrophic effects of drastic climate change. Knowledge and information on the climatic variation parameters in an environment is very vital for environmental study assessment and proper planning. Therefore, the importance of knowing the future climatic variation parameters cannot be under-estimated (Olusina et. al. 2012).

Previously several researches have been conducted on trend analysis and probability distribution both in Bangladesh and abroad.

Recently, several international studies of trend analysis have been performed by Haksan et. al. (2010), Olusina and Odumade (2012), Boyles and Raman (2003), Pal and Al-Tabbaa (2009), Batisani and Yarnal (2010), Dhorde et. al. (2009), Rai et. al. (2010), Mamtimin et. al. (2011), Chen et. al. (2007), Zhang et. al. (2011), Bartholy and Pongracz (2010), Sivakumar et. al. (2012). Trend analysis of temperature, rainfall and evapotranspiration were performed in these researches.

Different international studies of probability distribution have been performed by Wilson and Toumi (2005), Hanson and Vogel (2008), Sen and Eljadid (1999), Yue (2000), Michaelides et. al. (2009), Ben-Zvi (2009),²Zaharim et. al. (2009), Morgan et. al. (2009), Sherwood et. al. (2006), Kyselý (2002), Krumm and Hariharan (2004),

Punyawardena and Kulasiri (1996), Exell (1981), Pryor et. al. (2005), Ishihara et. al. (2005), Ishihara et. al. (2005), Jaramillo and Borja (2004), Gierens et al. (1999), Haag et. al. (2003), Zhang et al. (2003) and Sherwood et. al. (2006).

Several researches were conducted in Bangladesh by Ahmed (2009), Joya (2010), Rimi et. al. (2009), Hassan and Okubo (1998), Rouf, et. al. (2011), CCC (2009), Sanderson and Ahmed (1979), Farhana and Rahman (2011), Islam (2009) and Manalo (1976), where trends in different climatic variables, such as rainfall, temperatures, sunshine duration and evaporation have been investigated. IIRI, BMD, and BWDB data were used for these researches for different selected stations in Bangladesh.

In Bangladesh different studies associated with probability distribution were performed by Hossain et. al. (2009), Rashid et al. (2012), Saleque (1991) and Akhter (1992). BMD and BWDB data were used for these studies for mainly temperature and rainfall parameters.

This comprehensive study aimed at probability distribution and trend analysis of various climatologic parameters in different weather stations of Bangladesh. Statistical analysis of the recent trend of climate change and prediction of future climate change scenarios that is, interpretation of climate change also has been carried out. BARC and BMD data of different meteorological stations of seven climatologic parameters that is, temperature, rainfall, solar radiation, wind speed, relative humidity, bright sunshine hour and evaporation are used in this research.

1.2 OBJECTIVE OF THE STUDY

Objective of the study is as follows:

- To analyze the seasonal and monthly trend of various climatologic parameters in different weather stations of Bangladesh.
- To check the Goodness of fit of various climatologic parameter data with various probability distributions.
- To address the phenomena such as global warming, global dimming, global cooling for temperature; global dimming for solar radiation; wetter/drier winter, wetter/drier summer for rainfall.

The possible outcome of the study has given an insight into seasonal, monthly and annual trend of various climatologic parameters such as temperature, relative humidity, solar radiation, rainfall, evaporation, bright sunshine hour etc. in different parts of Bangladesh. Another outcome of the study is to fit different probability distributions with these climatologic parameters and to select the appropriate distribution that a particular data group follows.

1.3 STUDY AREA

Bangladesh a land of worlds one of the largest deltaic fluvial system experienced a subtropical monsoon climate characterized by wide seasonal variations in rainfall, moderately warm temperatures, high humidity and decreasing trend of bright sunshine hours, solar radiation, wind speed & evaporation rate has been chosen for the study.

Two types of data sources have been used in this study. Those are BMD that means Bangladesh Meteorological Department and BARC means Bangladesh Agricultural Research Council. For rainfall and evaporation rate BMD data has been used. For rest of the climatic parameters, BARC data has been used.

31 stations data are available for temperature, where rainfall have 34 stations data, bright sunshine hours, wind speed and relative humidity have 33 stations data, evaporation have only 12 stations data and 10 stations data are available for solar radiation. That means total 186 numbers of data sets were available for analysis.

For better understanding of the spatial variation of the climatic factors the stations are grouped into different regions and for better understanding the climate change pattern, whole Bangladesh is divided into seven different regions. Those are North West, North East, North Central, South West, South East & Eastern Hills and Coastal Region. Table 1.1 present the list of regions for different meteorological stations and Figure 1.1 represent the location of the meteorological stations over Bangladesh.

Table 1.1: List of Regions for data stations

Regions	Districts
North West (NW)	Bogra, Dinajpur, Ishurdi, Rajshahi, Rangpur, Syedpur
North East (NE)	Sitakunda, Srimongol, Sylhet
North Central (NC)	Dhaka, Mymensing, Tangail
South West (SW)	Barisal, Chuadanga, Faridpur, Jessore, Khulna, Madaripur, Satkhira
South East and Eastern Hills (SE & EH)	Comilla, Chandpur, Chittagong, Feni, Kutubdia, Maizdicourt, Rangamati
Coastal Region (CR)	Bhola, Cox's Bazar, Hatiya, Khepupara, Mongla, Patuakhali, Teknaf

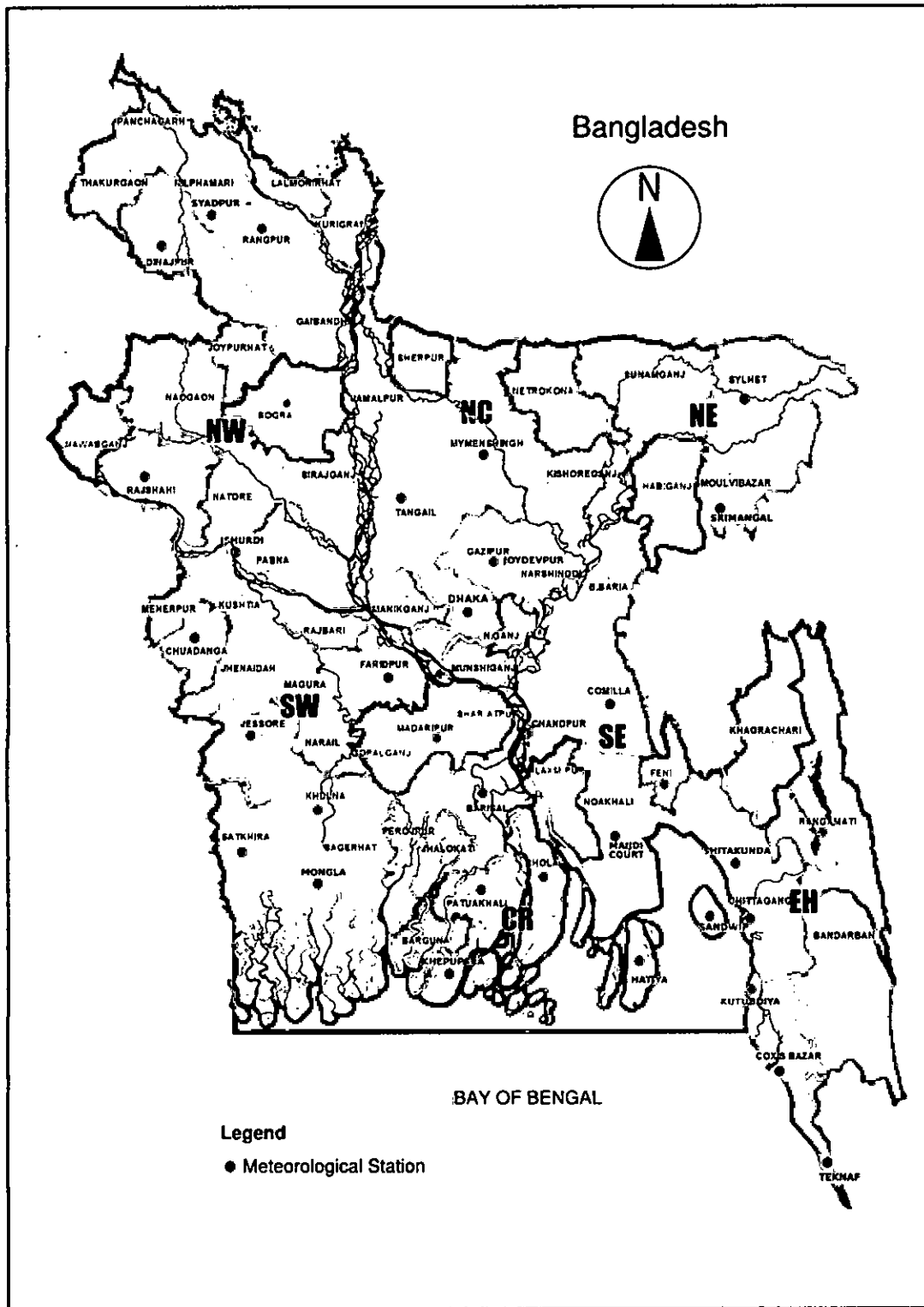


Figure 1.1 Locations of the Meteorological Stations (BMD) in the study area.

Availability of different meteorological stations for different climatologic parameters which nearly cover all part of Bangladesh as follows:

Table 1.2: Project Area

Sl no.	Station Name	Rainfall	Temperature	Solar Radiation	Wind Speed	Relative Humidity	Bright sunshine hour	Evaporation
1	Barisal	•	•	•	•	•	•	•
2	Bhola	•	•		•	•	•	
3	Bogra	•	•	•	•	•	•	•
4	Chandpur	•	•		•	•	•	
5	Chittagong	•	•		•	•	•	
6	Chuadanga	•						
7	Comilla	•	•	•	•	•	•	•
8	Cox's Bazar	•	•		•	•	•	
9	Dhaka	•	•	•	•	•	•	
10	Dinajpur	•	•		•	•	•	•
11	Faridpur	•	•	•	•	•	•	•
12	Feni	•	•		•	•	•	
13	Hatiya	•	•		•	•	•	
14	Ishurdi	•	•		•	•	•	
15	Jessore	•	•		•	•	•	
16	Khepupara	•	•		•	•	•	
17	Khulna	•	•	•	•	•	•	•
18	Kutubdia	•	•		•	•	•	
19	M.Court	•	•		•	•	•	
20	Madaripur	•	•		•	•	•	
21	Mongla	•	•		•	•	•	
22	Mymensingh	•	•	•	•	•	•	•
23	Patuakhali	•	•		•	•	•	
24	Rajshahi	•	•		•	•	•	•
25	Rangamati	•	•		•	•	•	•
26	Rangpur	•	•	•	•	•	•	•
27	Sandwip	•			•	•	•	
28	Satkhira	•	•		•	•	•	
29	Shitakunda	•	•		•	•	•	
30	Srimangal	•	•	•	•	•	•	•
31	Syadpur	•						
32	Sylhet	•	•		•	•	•	
33	Tangail	•	•		•	•	•	
34	Teknaf	•	•		•	•	•	
35	Joydevpur			•				•

1.4 SCOPE OF WORK

The study deals with different dimensions of data analysis and has the following limitations:

- Maximum number of stations was 34 for rainfall, and solar radiation has the minimum of 10 data stations.
- Data extends between the years 1980 and 2009, but all data did not cover the whole range. During similar analysis same number of years was included for each station.
- Extreme values were excluded in trend analysis.
- No Chi-square tests were done for solar radiation due to inadequate volume of data.

1.5 ORGANIZATION OF THE THESIS

The thesis is organized in the following sequence of chapters:

Chapter 1 Introduction- This chapter introduces the concepts of the study, study area and objectives.

Chapter 2 Literature Review- This chapter describes previous works and experiments focused on the probability distribution and trends of various climatic parameters all over the world.

Chapter 3 Methodology- This chapter describes the study region, data acquisition and analysis methods.

Chapter 4 Results and Discussions- This chapter puts forward the results from the analysis and discussion on the results.

Chapter 5: Conclusions and Recommendations- This chapter consists of the conclusions and recommendations.

Chapter 2

LITERATURE REVIEW

2.1 GENERAL

In the past, a number of studies have been carried out on the probability distribution and trends of various climatic parameters in Bangladesh as well as all over the world. In this chapter some of the pioneering works of past researched have been summarized in order to gain some knowledge, so that the study objectives can be fulfilled having proper conception.

2.2 REVIEW OF PREVIOUS STUDIES

Literature review is organized in two different parts. First review international literature related both for trend analysis and probability distribution studies and second one is the summery of similar studies conducted in Bangladesh.

2.2.1 International studies

Trend analysis and probability distribution related different studies have been conducted in different countries.

2.2.1.1 Trend studies

A trend analysis was conducted (Haksan et. al. 2010) to investigate the trends in hydro meteorological parameters for five different climate regions of Turkey. Long term annual mean temperature, precipitation, and actual evapotranspiration estimations derived by Turc formula has been used to determine trends. The data has been analyzed by run test (swed-eisenhart) for homogeneity of time series and implemented mann-kendall non-parametric trend test and regression analysis. The results show that majority of stations shows upward trend on temperature and evapotranspiration. One except all stations shows no trend on precipitation. When are the observed trends in temperature for analyzed stations higher than $0,02^{\circ}\text{C}$ per year, upward evapotranspiration trend is seen.

A research (Olusina and Odumade, 2012) was conducted for the determination of the future climatic variation parameters of Nigeria for the next fifty years (2000-2050). Due to the complex and multidimensional nature of the variables involved, the parameters considered in the work were limited to temperature and rainfall.

Statistical downscaling concept was adapted to the WORLDCLIM (Global Climate Data) past and future data for 50 years to obtain climatic parameters for Nigeria. Past temperature and rainfall data were also obtained from the Nigeria Meteorological Agency (NIMET) to check the validity of the past WORLDCLIM data at the national level. DIVA-GIS and Arc-GIS were basically used in this research.

Climate patterns and trends in North Carolina are analyzed (Boyles and Raman 2003) for the period 1949–1998. Precipitation, minimum temperature and maximum temperature are analyzed on seasonal and annual time scales using data collected from the National Weather Service Cooperative Observer Network. Additionally, changes in patterns of occurrence of the last spring freeze and first fall freeze are investigated. Linear time series slopes are analyzed to investigate the spatial and temporal trends of climate variability in North Carolina. Spatial analysis of climate variability across North Carolina is performed using a geographic information system. While most trends are local in nature, there are general statewide patterns. Precipitation in North Carolina has increased over the past 50 years during the fall and winter seasons, but decreased during the summer. Temperatures during the last 10 years are warmer than average, but are not warmer than those experienced during the 1950s. The warm season has become longer, as measured by the dates of the last spring freeze and first fall freeze. Generally, the last 10 years were the wettest of the study period.

A trend analysis of rainfall has been carried out in Kerala (Pal and Al-Tabbaa, 2009), the south-western state of the Indian peninsula, comprising of a total of six gridded areas, was chosen for this study focusing on the variability and changes in rainfall extremes in the different seasons. The trends are determined over the period of 1954–2003, which are also tested for significance. The results show that there are large intra-regional differences in the trends in different seasons. Local changes were found different from the large spatial scale averages in Kerala. Winter and autumn extreme rainfall were found having an increasing tendency with statistically significant changes in some regions indicating more occurrences of winter and autumn floods. On the other hand the spring seasonal extreme rainfall showed decreasing trends, which together with increasing frequency of the dry days is mainly affecting the total seasonal precipitation, which mainly point towards the vulnerability of Kerala to increasing probability of water scarcity in the pre-monsoon time and a delaying monsoon onset.

Another study (Batisani and Yarnal 2010) examined the climatic phenomenon in semi-arid Botswana, to investigate the signs of climate change, and to explore the policy implications for climate adaptation. To reach these goals, the paper determines rainfall variability and monthly and annual trends in that variability. The results agree with earlier work showing gradients in rainfall and rainfall variability across Botswana. The results also identify a trend towards decreased rainfall throughout the

nation, which is associated with decreases in the number of rainy days. Both the drying trend and decrease in rainy days agree with climate change projections for southern Africa.

Investigations have been carried out by climatologists (Dhorde et. al. 2009) to find a possible link of climate change with anthropogenic activities by studying trends in different climatic parameters, particularly surface air temperature at India's four most populated cities - Delhi, Kolkata, Mumbai and Chennai, where trends in annual and seasonal temperature series were analyzed using linear trend and Mann-Kendall test. Most of the trends showed positive change in temperature with different rates in different seasons.

Another statistical approach (Rai et. al. 2010) was applied to investigate the spatial distribution pattern of the indicative hydro-climatic variables over the Yamuna River basin of India. Hydro-climatic time series used in the analysis were annual rainfall; Monsoon and Non-monsoon rainfall; annual, Monsoon and Non-monsoon rainy days; onset of effective monsoon and aridity index.

From the analysis (Mamtimin et. al. 2011) of recent trend of temperature change under hot and cold dessert climates in Sahara (Libya) and Central Asia (Xinjiang, China), increasing annual temperatures were detected over the period 1955-2005 corresponding with global temperature warming. From 1955-1978, negative (decreasing) temperature trends were, observed at all three hot desert stations and at two of the three cold desert stations. From 1979-2005, strikingly positive temperature trends were seen at all six stations. In seasonal respects, winter (December to February) and summer (June to August) show different temperature trends over the period 1955-2005: the hot desert experienced an increasing temperature trend at a greater extent in summer than in winter; vice-versa, in the cold desert positive trends were computed for winter and negative for summer. It can also be observed that mostly hot desert warming occurred in summer, opposite to cold desert warming in winter.

Temporal trends of annual and seasonal precipitation and temperature from 1951 to 2003 in the Hanjiang basin are analyzed (Chen et. al. 2007) using the Mann-Kendall and the linear regression methods where spatial distributions of precipitation and temperature are interpolated by the inverse distance weighted interpolation method. The results indicate that, at a = 0.05 significance level precipitation in the Hanjiang basin has no trend, but the temperature in the same region has significant upward trends in most parts of the Hanjiang basin. The mean annual, spring, and winter run-offs in the Danjiangkou reservoir basin have decreasing trends.

The non-parametric Mann-Kendall statistic was used to identify (Zhang et. al. 2011) change trends and points in the annual streamflow in the Hun-Tai River basin in

Y
northeast China. The identifications were based on streamflow records from six hydrological stations during 1961–2006, and the purpose was to analyze the change characteristics of the hydrological processes. The results indicated that all hydrological stations presented downward trends in annual streamflows.

In an analysis (Bartholy and Pongracz, 2010) of the possible tendency of future precipitation conditions for the Carpathian Basin, several climate extreme indices have been analyzed. The result suggest that regional intensity and frequency of extreme precipitation increased in the Carpathian Basin during the second half of the 20th century, while the total precipitation decreased and the mean climate became slightly drier during the whole 20th century.

Trend analysis (Sivakumar et. al. 2012) of the climatic parameters from 2001 to 2007 in northeastern zone of Tamilnadu showed in general that rainfall increased during 2001 to 2005 and decreased during 2006 while temperature showed same trend. Temperature, rainfall, relative humidity and wind velocity had positive regression when compared with the years (2001-2007).

2.2.1.2 Probability distribution studies

f
Probability distribution of daily precipitation for Cambridge Botanic Gardens (1898 – 1999) shows that the precipitation greater than 10 mm/day fits better than gamma distribution to both the stretched exponential (long dashed line) and generalised Pareto (dotted line) distributions. (Wilson and Toumi, 2005)

An analysis of rainfall data of USA indicates that the Pearson Type-III (P3) distribution fits the full record of daily precipitation data remarkably well, while the Kappa (KAP) distribution best describes the observed distribution of wet-day daily rainfall. The analysis also finds that G2 distribution performs poorly in comparison to either the P3 or KAP distributions. (Hanson and Vogel, 2008)

Libyan monthly rainfall distributions (more than 20 years data) are found to abide by gamma probability distribution function which is confirmed on the basis of chi-square tests. (Sen and Eljadid, 1999)

An analysis of rainfall data from two different climatic regions of Japan (Tokushima and Niigata prefecture) fitted normal distributions on normal paper. To find the goodness of fit of the normal distribution, the chi-square test was executed. The test indicates that both the transformed storm peaks and amounts can be approximately represented by normal distributions. (Yue, 2000)

I
A study of statistical analysis of the time series of rainfall-recording stations in Cyprus (from 1917 to 2006) found that Gamma distribution fitted to the rainfall records. (Michaelides et. al. 2009)

The Gumbel and the lognormal distributions well fit to most of the annual maxima

series and to a very few partial duration series for eleven rainfall durations, from 5 to 240 min, at four stations of the Israel Meteorological Service. (Ben-Zvi, 2009)

An study of the probability estimates of temperature extremes (annual temperature maxima and heat waves) in the Czech Republic (1961 – 1998) concluded that, extreme value distributions should not be applied to maximum annual lengths of heat waves and periods of tropical days, but may be used to estimate the recurrence probabilities of one-day temperature extremes, after the GEV distribution has been shape-parameter tested. (Kysely , 2002)

A method was developed using inside-outside (inside a building-ambient) temperature data to switch of mobile GPS devices when inside. Testing with five US cities temperature data they developed the model assuming that the probability distribution of temperature variation follows Gaussian distribution. (Krumm and Hariharan, 2004)

It is possible to fit different theoretical probability distributions to the observed data. Conventionally, sunshine data analysis have been based on the fitting a normal probability density function which is bell-shaped and thus symmetric to the observed data. Popular use of normal probability density function in sunshine data analysis is probably due to the fact that it enables the use of certain statistical techniques such as Analysis of Variance (ANOVA), regression analysis and certain types of hypotheses. But in practical situations sunshine duration does not fit very well into such a symmetric distribution and most of the time it represents a skewed distribution. (Punyawardena and Kulasiri, 1996)

Solar radiation data in the form of daily sunshine data from thirty three meteorological stations in Algeria for eleven years or more were collected and analyzed, which followed a beta probability distribution. (Ettoumi et. al. 2002)

A model was developed based on detailed studies of solar radiation data for Thailand and is expected to be applicable over the entire South-East Asian peninsula. Empirical formulae (binomial distributions) have been found to give satisfactory approximations to the probability distributions needed. (Exell, 1981)

In another research, it is assumed that the wind speed distribution in north Europe (Copenhagen) is well described using the two-parameter Weibull distribution. While this is generally true, it is not uniformly the case especially in locations that are characterized by mixed forcing of the flow. (Pryor et. al. 2005)

It was observed, in a research with the wind speed during typhoon in Japan (Naha and Chiba), that, the general mixed probability distribution function combining the Weibull and log-normal distributions improved the fitting of observation data. (Ishihara et. al. 2005)

Another research investigated the probability distribution of wind speed data recorded

in Faculty of Engineering, University Kebangsaan Malaysia. The wind speed data represented in the form of frequency curves show the shape of a potential model. The two-parameter Weibull distribution and lognormal distribution are adopted in this study to fit the wind speed data. The scale and shape parameters were estimated by using maximum likelihood method. The goodness-of-fit tests based on the empirical distribution function are conducted to show that the distribution adequately fits the data. It was found from the hypothesis test that, although the two distributions were all suitable for describing the probability distribution of wind speed data, the two-parameter Weibull distribution was more appropriate than the lognormal distribution. (Zaharim et. al. 2009)

In another study, three types of probability distributions have been used to estimate the wind energy potential in Kuala Terengganu, the east coast Malaysia. A comparison is made on the ability to describe the experimental mean wind power density. The numerical and graphical results obtained from the specific statistical that Weibull and Gamma distribution, whose parameters are estimated using the maximum likelihood principle, provide the best fits for the year 2005 and 2006 respectively. There are three statistical distributions used to fit this data set. They are Weibull, Lognormal and Gamma distribution. The result of this study show that Weibull and gamma distribution seems to satisfy fit the wind speed data used. (Zaharim et. al. 2009)

It is common practice to model short-term wind speeds with the Weibull distribution (Monahan , A. H., 2006)(Morgan et. al. 2009). Using 10-minute wind speed time series at 178 ocean buoy stations ranging from 1 month to 20 years in duration, it was shown that the widely-accepted Weibull distribution provides a poor fit to the distribution of wind speeds when compared with other models. The 2-parameter Lognormal distribution performs best for estimating extreme wind speeds, but still gives estimates with significant error. (Morgan et. al. 2009)

The statistical characteristics of the wind speed in La Ventosa, Oaxaca, Mexico, have been analyzed by using wind speed data recorded by Instituto de Investigaciones Electricas. By grouping the observations by annual, seasonal and wind direction, it was shown that the wind speed distribution is not represented by the typical two-parameter Weibull function. A mathematical formulation by using a bimodal Weibull&Weibull probability distribution function has been developed to analyze the wind speed frequency distribution in that region. (Jaramillo and Borja, 2004)

Observations suggest that the distribution of relative humidity over ice (RHI) in ice supersaturated regions follows an almost exponential decay, indicating that the underlying processes that cause this functional dependence act in a statistically independent manner (Gierens et al., 1999). Haag et. al. (2003) suggested that such distributions are primarily brought about by vertical air motions that cause a certain distribution of atmospheric temperatures T . Variability of H_2O also plays a role, but is

less influential. When distributions of T and H₂O concentrations are combined to derive RHI, the resulting distributions of RHI exhibit a quasi-exponential decrease towards high RHI values, in agreement with observations.

Tuck et al. (2003) assessed the importance of different near-tropopause mixing processes from two-point humidity correlation statistics. Previous investigators have found exponential distributions of humidity near the tropopause (Gierens et al. 1999; Spichtinger et al. 2002). Soden and Bretherton (1993) noted an approximately lognormal distribution of upper-tropospheric humidity (an average from about 200 to 500 hPa, though with a humidity-dependent weighting function). As yet no unequivocal explanation for these distributions has emerged. Complicating the picture, Zhang et al. (2003) reported bimodal distributions in some (but not all) available datasets. Previous studies agree, however, that water vapor mixing ratio and relative humidity distributions are very broad and look nothing like the Gaussian distribution often found for other geophysical quantities. This indicates that water vapor equilibria are not maintained by random additions and subtractions of water from air parcels, which should (by instituting a random walk of humidity) produce a Gaussian distribution. (Sherwood et al. 2006)

2.2.2 National studies

There are several types of trend analysis and probability distribution related studies have been conducted in Bangladesh.

2.2.2.1 Trend studies

Ahmed (2009) has analyzed yearly temperature trend of BMD data from 1974 to 2004, where distribution is a straight line with a positive gradient that is gradually increasing.

Another project was done (Joya, 2010), where Temperature and radiation trend analysis was accomplished, where the overall average temperature is slightly decreased in dry period as well as in pre-monsoon. There is a major increase in average temperature trend in pre-monsoon and post-monsoon. The zone-wise trend of monthly mean temperature represents the nationwide trend fully that is first half of a year is having a decrease in average temperature where as the second half of the year is facing a high rise in average temperature. The analysis represents a mixed trend for both the cases of monthly maximum and minimum temperatures, there is no change overall. From the yearly trend of average temperature it is observed that most of the stations of north-east, north-west, north-central, south-east and eastern hilly region have an increasing phase. Few locations of south-east region have a decreasing trend. Dhaka, the capital of our country is one of those locations having extreme increase in average temperature. During the decade of 80's mean temperature shows a decreasing

trend. But from the 90's to recent years this trend is continuously increasing. A mixed trend is observed during 50's, 60's and 70's decade. The analysis also reflects that the overall radiation trend is decreasing. A slight decrease is observed in pre-monsoon and dry period. In most of the locations of Bangladesh the sun radiates highly in the month of April and May and minimum radiation occurs in the month of December and January.

Trend analysis of climate change and investigation on its Probable Impacts on Rice Production at Satkhira, Bangladesh was done by Rimi et al.. This study aimed at statistical analysis of the recent trend of climate change and prediction of future climate change scenarios with Global Climate Models (GCMs) and most importantly investigation on the impacts of climate change on rice production. The Satkhira district was taken as the study area, which represented the coastal zone of Bangladesh. There was a statistically non-significant increasing trend of annual maximum and minimum temperature and annual total rainfall through the period of 1950-2006. The trend analysis of seasonal rainfall for the period 1981-2006 could reveal that, from the last two decades the seasonal normal rainfall pattern has been altered. Rainfall in pre-monsoon and winter season had a decreasing trend whereas it had an increasing trend during monsoon and post-monsoon seasons. (Rimi et al., 2009)

Surface air temperature distribution over the Ganges Delta Region of southwest Bangladesh and its tendency of warming are discussed (Hassan and Okubo, 1998) through the analyses based upon the long-term temperature data from 1900-93. The data consist of two parts corresponding to the time-periods: 1973-93 and 1900-72. The study area is one of most affected places by the annual monsoon hydrological cycle and the present observation from these temperature data indicate that the surface air temperature gradient in the north-south direction is significant in the rainy season and that the temperature of the region is at an increasing tendency; the warming rate during the data periods (1900-93) on the long-term mean annual basis is estimated as 0.77°C at Satkhira of the Khulna division and 0.29°C as an aerial average including the Barisal division, for the time difference of about half a century between the data periods before and after 1972.

The past, present and future climatic pattern (temperature and rainfall) of northwestern and southwestern part of Bangladesh was assessed (Rouf, et al., 2011) based on the High Resolution Atmospheric-Ocean General Circulation Model (AOGCM) using the present rainfall and temperature data of the Bangladesh Meteorological Department (BMD). From overall analysis it has been observed that, the present mean temperature for Bangladesh was found to rise from the past, rises slightly, but in near future and future the rate of mean temperature rise is projected to be much more than the present rate (increase up to $4.34^{\circ}\text{C}/100$ years), the rate is projected to be $5.39^{\circ}\text{C}/100$ years in case of Shapahar and Porsha a while

4.37 °C/100 years in case of Kalapara and Amtoli. The present, near future and future average rainfall of Bangladesh appeared to fluctuate, but have shown a decreasing trend (decreases up to 1.96 mm/100 years). The mean average rainfall of Shapahar and Porsha presently decreases very slowly (not significant), but in near future and future will decrease slowly (0.66mm/100 years). In case of Kalapara, the average rainfall appears to decrease presently, near future and future will decrease up to 3.62 mm/100 years. The average rainfall of Amtoli appears to decrease @ 1.92mm/100 years but in near future appears to increase slightly and again decrease at the rate of 3.27mm/100years in future.

A research was conducted (CCC, 2009) where long-term changes and trends in climatic variables, such as rainfall, temperatures, sunshine duration and evaporation, have been investigated. BMD and BWDB data are used for this research for eight selected stations.

In this research it has been observed that the rainfall, during the summer (March-May) and critical period (11 March-10 May) are found to have increased at all the eight stations. The rainfall during the winter (November-February) has also increased except at Sylhet. The statistics about the monsoon (June-October) rainfall are mixed rainfalls have decreased at 5 stations and increased at 3 stations. For entire Bangladesh, the trends in seasonal rainfall totals are about 9 mm, 38 mm, 10 mm and 18 mm per decade (10 years) in the winter, summer, monsoon and critical period, respectively. It thus appears that the seasonal rainfalls have in general increasing trends except at monsoon.

Annual and seasonal mean temperatures are found to have in general increasing trends in Bangladesh. Other than the mean temperature, the maximum and minimum temperatures were also analyzed and the results are reported in the main text. Both maximum and minimum temperatures, and hence the mean temperature, have decreasing trends in the month of January, which is the peak winter month. This indicates that the peak winter is becoming cooler day by day.

The analysis of sunshine duration data reveals that the winter, dry season, summer and monsoon, sunshine are declining at a rate of 5.7%, 5.0%, 3.9% and 3.8% respectively in every 10 years for the entire Bangladesh. The overall annual decrease for the entire Bangladesh is about 0.36 hours a day in every 10 years. This rate of decline in annual sunshine hour is equal to 4.7% a decade.

In this study, the crop evapotranspiration (Etc) during the dry season is found to be decreasing. This is mainly due to the decreasing sunshine duration, though temperatures have rising trends. The net irrigation requirement during the dry season is also decreasing due to decreasing ETC and increasing rainfall trends.

Another study was accomplished (Sanderson and Ahmed, 1979) through trend surface

mapping technique to explain the regional trends and local effects on the distribution of pre-monsoon rainfall in Bangladesh.

A trend analysis (Farhana and Rahman, 2011) was done to characterize rainfall trend in Bangladesh by temporal statistics analysis to focus towards examining any discernable trends in a particular time series. With respect to year from 1950-1999, the standard deviation of annual rainfall is significantly decreasing at 388.1 mm/year at Patuakhali, and increasing at 164.7 mm/year at Sandip. The mean of annual rainfall is significantly decreasing at 42.7 mm/year at Comilla, and increasing at 257.8 mm/year at Rangamati. The coefficient of variation of annual rainfall is significantly decreasing at 157.7×10^{-3} mm/year at Patuakhali, and increasing at 31.5×10^{-3} mm/year at Sandip. With respect to year from 1950-1999, in monsoon the countrywide standard deviation of rainfall is significantly increasing at 238.2×10^{-1} mm/year and countrywide mean rainfall is significantly increasing at 74.9 mm/year.

Long term changes of near surface air temperature over Bangladesh have been studied (Islam, 2009) using the available historical data collected by the Bangladesh Meteorological Department (BMD). Maximum and minimum daily temperature data of last sixty years (1948-2007) collected from 34 stations of BMD located all over the Bangladesh have been used in this study. It has been found that daily maximum temperature shows a positive trend of increase at a rate of 0.621 ± 0.491 °C per 100 year. The maximum increase occurred during November at a rate of 2.7 °C per 100 year. However, daily minimum temperature shows more significant trend of increase at a rate of 1.536 ± 0.461 °C per 100 year. The maximum increase occurred during February at a rate of 3.4 °C per 100 year. Daily mean temperature shows positive trend of increase at a rate of 1.026 ± 0.403 °C per 100 year. It has been clearly found that temperature of winter season (December to February) has been raised much higher rate than that of summer season (June to August). This study also reveals that temperature has been increase predominantly over the last 30 years (1978-2007) than last 60 years (1948-2007).

The Agro-Climatic Survey of Bangladesh (Manalo 1976) described the characteristics features of the climatic regimes of the country. The appendix contains 25 tables dealing with meteorological and hydrological data, the histograms of monthly rainfall, statistical measures of a number of meteorological parameters have been tabulated. Rainfall variables are emphasized; measures of its central tendency, of its dispersion, of its extreme values and its medians are among the statistics presented. Some statistical characteristics of evaporation and relative humidity have been evaluated; vapor pressure, bright sunshine hour and cloudiness. Temperature and its extremes are tabulated, as well as the water balance regime. Wind speed in different units and time intervals, information on cyclones, the frequency distribution of cyclonic disturbances and remarkable cyclones which have struck Bangladesh.

2.2.2.2 Probability distribution studies

A study was conducted (Hossain et. al 2009) on the wind power potential of five selected meteorological stations of Rajshahi division, in the northwest of Bangladesh. From the available observed raw wind data, long term averages on monthly and annual basis have been obtained, from which probability distribution of wind speed, velocity duration curves and distribution of power in the wind are plotted. Wind roses have also been plotted for the stations. The results indicate that out of the five stations Ishwardi has higher wind potential than the others.

Modeling of short duration Rainfall intensity duration frequency (SDR- IDF) equation for Sylhet city in Bangladesh was done by Rashid et al. (2012). Daily rainfall data for year 1962 - 2005 from Bangladesh Water Development Board (BWDB) and Bangladesh Meteorological Department (BMD) was used in this study. Indian Meteorological Department (IMD) empirical reduction formula was used to estimate the short duration rainfall intensity from daily rainfall data. Various distribution functions were used for analysis and chi-square goodness to fit test were used to identify the best statistical distribution among them. Study showed that Person Type III is the best probability distribution.

A project work was done by (Saleque 1991) where several commonly used probability distributions were applied to the available peak flows of the Jamuna at Bahadurabad. The distributions considered included normal, Lognormal, Log pearson type III and Extreme Value Type I distribution. Significance tests of serial correlation indicated that annual peak flows of Jamuna is random and fitting of probability distribution is appropriate. The distributions were fitted by computer programmes developed for this study. For each method, the goodness of fit was investigated by a number of methods such as visual inspection of the probability plots, quantitative statistical tests and comparison of deviations between observed and computed peak flows at different return periods. Based on the results of this study, it was not possible to choose one method as the best among several alternative methods of frequency analysis. So an attempt was made to suggest a ranking of the distributions on the basis of various comparisons the order was Log Pearson Type III, Lognormal, Extreme Value Type I.

Large-scale planning for improved land and water management and expanding water resources development has made it increasingly important that a consistent approach be adopted for estimating the magnitude-frequency relationships for point rainfall extremes (EP) (Akhter 1992). The aim of frequency analysis is to select or fit probability distributions to observed data and then values needed by hydrologist and engineers may be extrapolated beyond the range of recorded observations. In this study five distributions viz, normal, log-normal, Gumbel, Pearson Type III and log-

Pearson Type III were compared for their ability to fit maximum rainfall values of durations one to three days for the south eastern part of the country. Daily rainfall amounts from 35 stations varying from 27 to 29 years in length provided the basic data for the study. Statistical tests indicated that EV1, log-normal and normal distributions fitted data better than others. EV1 distribution seems to be slightly better, but it did not show any marked superiority over the other two.

2.3 SUMMERY

From different studies of climatic parameters it is evident that climate is changing throughout the world including Bangladesh. Bangladesh is already experiencing climate related hazards like floods, draughts and cyclones. Different climatic parameters like rainfall, temperature, solar radiation, bright sunshine hours, evaporation, wind speed and relative humidity are very important for agricultural aspects. Different studies show that climatic parameters follow different probability distribution and trend in different areas. The outcome of these studies will be helpful for further study and analysis.

Chapter 3

THEORY AND METHODOLOGY

3.1 GENERAL

In this chapter a brief description about the data source, processing and analysis of data used in the study are discussed. Goodness of fit test, estimation and tabulation of chi-square value and compare with critical chi-square value techniques are also thoroughly presented here.

3.2 THEORY

3.2.1 Probability Distribution

The definition of "probability" has been labored over for many years. One definition that is easy to grasp is the classical or a priori definition:

If a random event can occur in n equally likely and mutually exclusive ways, and if n_a of these ways have an attribute A , then the probability of the occurrence of the event having attribute A is n_a/n written as

$$\text{Prob}(A) = n_a/n \dots \dots \dots (1)$$

This definition is an a priori definition because it assumes that one can determine before the fact all of the equally likely and mutually exclusive ways that an event can occur and all of the ways that an event with attribute A can occur.

The classical definition of probability takes on more utility in hydrology in terms of relative frequencies and limit.

If a random event occurs a large number of times n and the event has attribute A in n_a of these occurrences, then the probability of the occurrence of the event having attribute A is (Hann, C. T., 1977)

$$\text{Prob}(A) = \lim_{n \rightarrow \infty} n_a/n \dots \dots \dots (2)$$

3.2.2 Trend analysis

Definition of trend analysis –Trend analysis is based on the idea that what has happened in the past gives traders an idea of what will happen in the future. More relevant theories and terminologies are presented in Appendix C.

3.3 DATA SOURCE

Standard set of monthly, annual and seasonal data of different climatologic parameters of different meteorological stations in Bangladesh are analyzed in this study have been collected from BMD (Bangladesh Meteorological Department) and BARC (Bangladesh Agricultural Research Council) as described bellow:

3.3.1 Temperature

Temperature data have been collected for thirty one stations for the time period of 1980 to 2008. The data are available in the form of year wise monthly average maximum temperature & year wise monthly average minimum temperature in degree centigrade.

3.3.2 Rainfall

Rainfall is collected and measured in a rain gauge such as pluviometer; ombrometer and hietometer are also sometimes used to designate a raingauge (Subramanya, 2003). Rainfall data is measured by Manual gauge and Self Recording Rain Gauge by BMD. Rainfall data is available for thirty four stations of Bangladesh for the time period of 1980 to 2008.

3.3.3 Solar radiation

BMD measures solar radiation by using Eply Pyranometer which is installed at a height of two meter from the ground surface. The solar radiation data are available only for ten stations for the period of 2001 to 2007. These are the daily data in cal/cm²/day.

3.3.4 Wind speed

An anemometer is a device which is used for measuring wind speed. A simple type of anemometer is the cup anemometer is used by BMD. BMD installed anemometer at different height from the ground surface. For agronomy purpose wind speed is measured at a height of two meter from the ground surface.

Wind speed data have been collected for 32 stations for the time period of 1980 to 2008. The wind speed measures in two times in a day at interval of twelve hours at 12.00 noon and 12.00 midnight. The unit of wind speed is km/hour. In the web site of BARC (Bangladesh Agricultural Research Council) the wind speed data are available in year wise monthly average form.

3.3.5 Relative humidity

Hygrometers are instruments used for measuring relative humidity Relative humidity data are available for 32 stations for the time period of 1980 to 2008. Relative humidity is also measured eight times in a day at an interval of three hours and data

measurement starts from 12.00 midnight. In the web site of BARC (Bangladesh Agricultural Research Council) the wind speed data are available in year wise monthly average form.

3.3.6 Bright sunshine hour

BMD measures sunshine hour by using Sunshine Recorder. Bright sunshine hour data are available for 32 stations for the time period of 1980 to 2008. In the web site of BARC (Bangladesh Agricultural Research Council) the bright sunshine hour data are available in year wise monthly average form.

3.3.7 Evaporation rate

Bangladesh Meteorological Department measures evaporation rate by using "Class A" evaporation pan. BMD measures evaporation rate two times in a day at a interval of 6 hours at 06.00 a.m. and 12.00 noon and the measured unit is millimeter. The evaporation rate data have been collected for twelve meteorological stations for the time period of 1983 to 2008. In the web site of BARC (Bangladesh Agricultural Research Council) the evaporation rate data are available in year wise monthly average form.

3.4 DATA PROCESSING

The collected climatic data are in complex format which were not suitable for analysis. At first the data were processed by tools Microsoft Office Access 2003 to convert data into monthly total data series for rainfall and evaporation; monthly average data series for solar radiation, relative humidity, bright sunshine hours and wind speed; monthly average maximum and monthly average minimum data series for temperature. All the climatic data are checked thoroughly. From the visual observation the wrong data (abrupt values) have been discarded from the data set. Some common error were found in data set like negative, starry (**) sign instead of real value. May be it was due to punching error. These types of error were also deleted from data set.

3.5 DATA ANALYSIS

The collected and processed data series are analyze mainly in three steps those are following

- Preliminary analysis
- Trend analysis
- Probability distribution studies

3.5.1 Preliminary analysis

To get the data more systematically the data set was arranged for each climatologic parameter considering various variables. For rainfall and evaporation the considerable variables are annual, yearly maximum monthly, yearly minimum monthly, yearly maximum daily, yearly minimum daily, total pre-monsoon, total monsoon, total post-monsoon. For solar radiation, bright sunshine hour, wind speed & relative humidity following variables are considered – yearly average, yearly maximum monthly, yearly minimum monthly, average pre-monsoon, average monsoon and average post-monsoon. For maximum temperature the considerable variables are yearly maximum monthly of monthly average maximum, yearly minimum monthly of monthly average maximum, yearly average monthly of monthly average maximum, maximum monthly average maximum temperature of total pre-monsoon, maximum monthly average maximum temperature of total monsoon, maximum monthly average maximum temperature of total post-monsoon. Again for minimum temperature the considerable variables are yearly maximum monthly of monthly average minimum, yearly minimum monthly of monthly average minimum, yearly average monthly of monthly average minimum, minimum monthly average minimum temperature of total pre-monsoon, minimum monthly average minimum temperature of total monsoon, minimum monthly average minimum temperature of total post-monsoon. Definitions of different variables have been presented in Appendix C.

3.5.2 Trend analysis

Trend analysis of each variable including twelve months of each climatologic parameter has been carried out over time i.e. year. Trend analysis has done by using a spreadsheet program and presented with different graph with suitable format.

The slopes of linear trend lines have been listed in a table where the regional variation of the trend of different climatic parameters can be observed. A negative slope indicates decreasing trend, where higher numerical value indicates larger change in trend and vice versa. The list of trend line slopes have been presented in Appendix A.

3.5.3 Probability distribution study

There are many continuous probability distribution in addition to the normal distribution (Hann, C.T., 1977). Several probability distribution functions has been considered in this research, those are,

- a) Normal distribution
- b) Uniform distribution
- c) Exponential distribution
- d) Log normal distribution

e) Poisson distribution

f) EV-1 distribution

For the data series of each variable of each climatologic parameter, above six distributions are carried out. The probability distribution studies have been carried out by the Microsoft Office Excel tool.

3.5.4 Goodness of fit test and estimation and tabulation of Chi-square value

To test the goodness of fit of data series to probability distributions, "Chi-Square Goodness of Fit Test" method have been carried out. For every six distribution, for the data series of each variable of each climatologic parameter, chi-square value has estimated. A sample calculation has been presented in Appendix D.

After the estimation of chi-square value, the summery of chi-square value of six probably distribution of each variable of every station of each climatologic parameter has been presented in tabular form. Where ranking and scaling of chi-square values of every station were performed to find out the best fitted distribution. The detailed tabulation of chi-square value has been presented in Appendix B.

3.5.5 Comparison of Chi-square value with critical Chi-square value

Chi-square value of selected best fitted distribution for each variable of every station of each climatic parameter has been compared with critical chi-square value for 95% confidence level. The data set fits the selected best fitted distribution adequately when computed chi-square value smaller than the critical value. Comparison of Chi-square value with critical Chi-square value in tabular form has been presented in Appendix B.

Chapter 4

RESULTS AND DISCUSSIONS

4.1 GENERAL

To execute the objective of the study detailed analysis of seven climatic parameters-rainfall, temperature, solar radiation, bright sunshine hours, wind speed, evaporation, relative humidity for different stations of Bangladesh have been performed. Following outcome are obtained i) Trend of various variables of different climatologic parameters ii) Probability distribution study of different climatologic parameters iii) Interpretation of climate change in different parts of Bangladesh, which are described in this chapter.

4.2 TREND ANALYSIS

4.2.1 Trend of different Rainfall Variables

Maximum number of increasing trend of rainfall occurs in the month of September & October and minimum number of increasing trend of rainfall occurs from November to February. Annual rainfall has a decreasing trend among 14 of the 34 stations, rest of the stations (20 nos.) have increasing trend. The slopes of increasing trend lines are more predominant than those of the decreasing trends. But there is no uniform regional pattern of change. Though, it seems that the annual rainfall has an increasing trend in most of the central region of Bangladesh.

Only 10 of the 34 stations showed an increase in pre-monsoon rainfall (Mar-May), while 28 stations showed increase in monsoon rainfall (Jun-Oct). Ten (out of 34) stations showed increased rainfall in the post-monsoon period (Nov-Feb). Therefore it may be concluded that the rainfall concentration increases during a shorter period leading to drainage and flood problems. The list of trend line slopes are presented in Appendix-A, Table A1 .

4.2.2 Trend of different Evaporation Rate Variables

Maximum number of increasing trend of evaporation rate occurs in the month of August and September and minimum number of increasing trend of evaporation rate occurs in the month of December. Annual evaporation rate has a decreasing trend in 8 out of 12 stations. Again 8 out 12 stations have decreasing trend of evaporation rate in pre-monsoon period (Mar-May). In monsoon (Jun-Oct) period 6 out of 12 stations

have decreasing trend of evaporation rate. On the other hand, 9 out of 12 stations have decreasing trend of evaporation rate during post-monsoon (Nov-Feb). It is not sufficient to draw any generalized conclusion from only 12 stations. The list of trend line slopes are presented in Appendix-A, Table A2 .

4.2.3 Trend of different Temperature Variables

Trend analysis has been carried out both for maximum and minimum temperature for 31 stations of Bangladesh.

4.2.3.1 Trend of different Maximum Temperature Variables

Maximum number of increasing trend of monthly average maximum temperature occurs from the month of May to September and minimum number of increasing trend of monthly average maximum temperature occurs in the month of January. Data of 31 temperature stations represent that the yearly average maximum temperature data have increasing trend. Only 4 stations among 31 stations have decreasing trend. In pre-monsoon period (Mar-May) north-west region have decreasing trend. Central region have increasing trend except Hatiya, north-central region have mixed trend, north-east region have slightly increasing trend except Srimongol, south-east & eastern hills and south-west region have increasing trend except Madaripur. In monsoon period (Jun-Oct) there is over all increasing trend of temperature except Madaripur. In post-monsoon period (Nov-Feb) there is increasing trend of temperature except slightly decreasing trend in Comilla, Mymensing, Satkhira and Feni. The list of trend line slopes are presented in Appendix-A, Table A3. Joya. R.I (2010) has discussed this matter in details.

4.2.3.2 Trend of different Minimum Temperature Variables

Maximum number of increasing trend of monthly average minimum temperature occurs in the month of May and minimum number of increasing trend of monthly average minimum temperature occur in the month of January. Data of 31 temperature stations represent that the yearly average minimum temperature data mostly have increasing trend. 5 stations among 31 stations have decreasing trend. In pre-monsoon period (Mar-May) central region have mixed trend, north-central and north-west region have increasing trend, north-east, south-east and eastern hill where south-west region have mixed trend. In monsoon period (Jun-Oct) there is almost increasing trend of temperature except 4 stations. In post-monsoon period central region have decreasing trend except Cox's Bazar, north-central, north-east, north-west and south-west region have mixed trend. South-east and eastern hill region have increasing trend of temperature except Rangamati. The list of trend line slopes are presented in Appendix-A, Table A4. Joya. R.I (2010) has discussed this matter in details.

4.2.4 Trend of different Solar Radiation Variables

Maximum number of increasing trend of monthly average solar radiation occurs in the month of May and minimum number of increasing trend of monthly average solar radiation occurs in the month of August and September. Data from the 10 available stations represents an overall decreasing trend except Barisal, Dhaka and Rangpur. The list of trend line slopes are presented in Appendix-A, Table A5. Joya, R.I (2010) has discussed this matter elaborately.

4.2.5 Trend of different wind Speed Variables

Trend of various variables including monthly data of average wind speed of 32 stations of Bangladesh have slightly decreased. The list of trend line slopes are presented in Appendix-A, Table A6.

4.2.6 Trend of different Bright Sunshine Hour Variables

Maximum number of increasing trend of monthly average bright sunshine hours occurs in the month of July and minimum number of increasing trend of monthly average bright sunshine hours occurs in the month of December and January. From overall analysis of data series of various variables, average bright sunshine hour have a slightly decreasing trend all over 32 stations in Bangladesh. The list of trend line slopes are presented in Appendix-A, Table A7.

4.2.7 Trend of different Relative Humidity Variables

Maximum number of increasing trend of monthly average relative humidity occurs in the month of November and minimum number of increasing trend of monthly average relative humidity occurs from the month of July to September. Over all yearly average relative humidity of Bangladesh having slightly increasing trend. Only 2 out of 32 stations have slightly decreasing trend. Similarly average pre-monsoon and average monsoon have slightly increasing trend. 9 out of 32 stations have slightly decreasing trend of average pre-monsoon. Again 8 out of 32 stations have slightly decreasing trend of average monsoon. On the other hand, in average post-monsoon there is all through slightly decreasing trend of relative humidity. The list of trend line slopes are presented in Appendix-A, Table A8.

4.3 PROBABILITY DISTRIBUTION STUDY

4.3.1 Probability Distribution of different Rainfall Variables

Most of the monthly rainfall data series follow EV-1 and lognormal distribution except July, which follows normal distribution. Annual, yearly average monthly, yearly average daily & monsoon data series follows normal distribution. Yearly maximum monthly, yearly maximum daily data series follows log-normal

distribution. Pre-monsoon and post-monsoon data series follows EV-1 distribution. Summary of best fit distribution of data series of different rainfall variables has presented in Appendix-B, Table B1 to B20.

4.3.2 Probability Distribution of different Evaporation Rate Variables

Most of the monthly evaporation data series follow log-normal and normal distribution except October month, which follows uniform distribution. Annual evaporation data series follows uniform distribution. Yearly maximum monthly data series follows log-normal distribution. Yearly maximum daily data series follows EV-1 distribution, Yearly average monthly, yearly average daily, pre-monsoon, monsoon and post monsoon data series follows normal distribution. Summary of best fit distribution of data series of different evaporation variables has presented in Appendix -B, Table B21 to B40.

4.3.3 Probability Distribution of different Temperature Variables

Probability distribution study has been executed both for maximum and minimum temperature for 31 stations of Bangladesh.

4.3.3.1 Probability Distribution of different Maximum Temperature Variables

Monthly average maximum temperature data series follow normal distribution except May, which follows uniform distribution and June, which follows EV-1 distribution. Yearly maximum monthly and maximum of total pre-monsoon of monthly average maximum data series follow log normal distribution. Data series of yearly minimum monthly, yearly average monthly and maximum of total post monsoon of monthly average maximum temperature follow normal distribution. Data series of maximum of total monsoon of monthly average maximum temperature follow EV-1 distribution. Summary of best fit distribution of data series of different maximum temperature variables has presented in Appendix -B, Table B41 to B58.

4.3.3.2 Probability Distribution of different Minimum Temperature Variables

Monthly average minimum temperature data series follow normal and log-normal distribution except March, which follows uniform distribution. Yearly maximum monthly, yearly minimum monthly, minimum of total monsoon and minimum of total post monsoon of monthly average minimum data series follow log normal distribution. Data series of yearly average monthly of monthly average minimum temperature follow normal distribution. Data series of minimum of total pre-monsoon of monthly average minimum temperature follows uniform distribution. Summary of best fit distribution of data series of different minimum temperature variables has presented in Appendix -B, Table 59 to B76.

4.3.4 Probability Distribution of different Solar Radiation Variables

There is no goodness of fit test has been executed for solar radiation because of insufficient data series (2001-2007).

4.3.5 Probability Distribution of different Wind Speed Variables

Most of the monthly average wind speed data series follows EV-1 distribution except January and March, which follows log normal distribution. All other data series of wind speed variables follow EV-1 distribution except average post-monsoon which follows log normal distribution. Summary of best fit distribution of data series of different wind speed variables has presented in Appendix –B, Table B77 to B94.

4.3.6 Probability Distribution of different Bright Sunshine Hours Variables

Most of all different bright sunshine hour variables including monthly average data series follow normal distribution except February and yearly maximum monthly data series, which follow log normal distribution. Summary of best fit distribution of data series of different bright sunshine hour variables has presented in Appendix –B, Table B95 to B112.

4.3.7 Probability Distribution of different Relative Humidity Variables

Most of the different relative humidity variables including monthly average data series follow normal distribution except August and yearly maximum monthly data series follow log normal distribution and yearly average and average post-monsoon data series follow uniform distribution. Summary of best fit distribution of data series of different relative humidity variables has presented in Appendix –B, Table B113 to B130.

4.4 COMPARISON OF CHI-SQUARE VALUE WITH CRITICAL CHI-SQUARE VALUE

4.4.1 Comparison of Chi-square value with critical Chi-square value of different Rainfall Variables

For different rainfall variable, it has been seen that the chi-square value for the best fitted distribution for each variable are within in the range of critical chi-square value in most cases with 95% confidence level. Summary of comparison of chi-square value with critical chi-square value of different rainfall variables has presented in Appendix-B, Table B1-B20.

4.4.2 Comparison of Chi-square value with critical Chi-square value of different Evaporation Rate Variables

For different evaporation rate variable, it has been seen that, most of the chi-square value of the best fitted distribution for each variable could not satisfied critical chi-square value other than February and April. Summery of comparison of chi-square value with critical chi-square value of different evaporation rate variables has presented in Appendix-B, Table B21-B40.

4.4.3 Comparison of Chi-square value with critical Chi-square value of different Temperature Variables

4.4.3.1 Comparison of Chi-square value with critical Chi-square value of different Maximum Temperature Variables

For different maximum temperature variable, it has been seen that the chi-square value for the best fitted distribution for each variable are within in the range of critical chi-square value in most cases with 95% confidence level except for September and yearly minimum monthly. Summery of comparison of chi-square value with critical chi-square value of different maximum temperature variables has presented in Appendix-B, Table B41-B58.

4.4.3.2 Comparison of Chi-square value with critical Chi-square value of different Minimum Temperature Variables

For different minimum temperature variable, it has been seen that most of the chi-square value for the best fitted distribution for each variable are within in the range of critical chi-square value with 95% confidence level not including March, July, August, yearly minimum monthly of monthly average minimum temperature and pre-monsoon. Summery of comparison of chi-square value with critical chi-square value of different minimum temperature variables has presented in Appendix-B, Table B59-B76.

4.4.4 Comparison of Chi-square value with critical Chi-square value of different Wind Speed Variables

For different wind speed variable, it has been seen that most of the chi-square value for the best fitted distribution for each variable are within in the range of critical chi-square value with 95% confidence level, not including January, March, yearly minimum monthly and post-monsoon. Summery of comparison of chi-square value with critical chi-square value of different wind speed variables has presented in Appendix-B, Table B77-B94.

4.4.5 Comparison of Chi-square value with critical Chi-square value of different Bright Sunshine Hours Variables

For different Bright sunshine hour variable, it has been seen that, chi-square value of the best fitted distribution for 50% variables are within in the range of critical chi-square value with 95% confidence level. Summery of comparison of chi-square value with critical chi-square value of different bright sunshine hour variables has presented in Appendix-B, Table B95-B112.

4.4.6 Comparison of Chi-square value with critical Chi-square value of different Relative Humidity Variables

For different relative humidity variable, it has been seen that most of the chi-square value for the best fitted distribution for each variable are within in the range of critical chi-square value with 95% confidence level, not including October, November, yearly average and seasonal variation. Summery of comparison of chi-square value with critical chi-square value of different wind speed variables has presented in Appendix-B, Table B113-B130.

Table 4.1: Calculation of degrees of freedom

Name of the distribution	k	l	$v = k - l - 1$	Corresponding chi-square value for 95% confidence level
Normal distribution	5	2	2	5.99
Uniform distribution	5	2	2	5.99
Exponential distribution	5	1	3	7.81
Log-normal distribution	5	2	2	5.99
Poisson distribution	5	1	3	7.81
EV-1 distribution	5	2	2	5.99

K = number of class intervals
l = number of parameter

4.5 INTERPRETATION OF CLIMATE PARAMETERS

It is evident from the trends that there is a gradual change of climatic phenomenon in Bangladesh over the last three decades. Overall temperature is increasing; only 4 out of 31 stations showed decreasing trend in the maximum average monthly temperature while only 5 station showed decreasing trend in the minimum average monthly. Interestingly, stations from north-west region showed a dominant pattern of decreasing trend in the pre-monsoon period which is in contrast with the trend of annual average maximum monthly temperature. The rise of overall temperature throughout the country is a supporting evidence of global warming.

The annual average relative humidity is increasing, but this variable is decreasing in post monsoon (Nov-Feb) in all the 32 stations. 24 out of 34 stations showed

decreasing rainfall during this post monsoon period; this 24 includes all stations of NC & NW region. This indicates a drier winter, especially in the NC and NW region. Annual rainfall increases 20 out of 34 stations, which means that the climate is shifting towards drier winter and wetter summer.

The rise of temperature along with the decreasing wind speed trend might be the cause of increasing humidity trends. Besides, more evaporation due to higher temperature produces more clouds resulting in an increase in precipitation and decrease in bright sunshine hours and solar radiation.

Chapter 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 GENERAL

This study is based on the probability distribution and trends of various climatic parameters such as rainfall, temperature, wind speed, solar radiation, relative humidity, bright sunshine hour and evaporation of different stations in Bangladesh. Spread sheet program has been used for the data processing and analysis of the seasonal and monthly trend of various climatologic parameters in different weather stations of Bangladesh. To check the Goodness of fit of various climatologic parameter data series, several probability distribution functions has considered in this research such as Normal distribution, Uniform distribution, Exponential distribution, Log normal distribution, Poisson distribution and EV-1 distribution. To test the goodness of fit of data series to probability distributions, "Chi-Square Goodness of Fit Test" method have been carried out.

5.2 CONCLUSIONS

This study supports the following conclusions:

1. From the trend analysis of different climatic parameters in Bangladesh, it can be understood that there is a particular pattern of climate change that is, increasing trend of temperature and relative humidity cause decreasing trend in wind speed. Also increasing tendency of evaporation rate due to higher temperature cause increasing trend in rainfall and decreasing trend of bright sunshine hour and solar radiation.
 - Maximum increasing trend of rainfall occurs in the month of September and October and minimum increasing trend of rainfall occurs from November to February.
 - Maximum increasing trend of evaporation rate occurs in the month of August and September and minimum increasing trend of evaporation rate occurs in the month of December.
 - Maximum increasing trend of monthly average maximum temperature occurs from the month of May to September and minimum increasing trend of monthly average maximum temperature occurs in the month of

January.

- Maximum increasing trend of monthly average minimum temperature occurs in the month of May and minimum increasing trend of monthly average minimum temperature occur in the month of January.
 - Maximum increasing trend of monthly average solar radiation occurs in the month of May and minimum increasing trend of monthly average solar radiation occurs in the month of August and September.
 - Trend of various variables including monthly data of average wind speed of 32 stations of Bangladesh have slightly decreased.
 - Maximum increasing trend of monthly average bright sunshine hours occurs in the month of July and minimum increasing trend of monthly average bright sunshine hours occurs in the month of December & January.
 - Maximum increasing trend of monthly average relative humidity occurs in the month of November and minimum increasing trend of monthly average relative humidity occurs from the month of July to September.
2. From the probability distribution study of different climatic parameters, it can be understood that, particular variable follows particular probability distribution. From the analysis of weighted average method, best fitted distribution has been fixed for a particular variable of a particular climatic parameter.
- Most of the monthly rainfall data series follow EV-1 and lognormal distribution except July, which follows normal distribution.
 - Most of the monthly evaporation data series follow log-normal and normal distribution except October month, which follows uniform distribution.
 - Monthly average maximum temperature data series follow normal distribution except May, which follows uniform distribution and June, which follows EV-1 distribution.
 - Monthly average minimum temperature data series follow normal and log-normal distribution except March, which follows uniform distribution.
 - Most of the monthly average wind speed data series follows EV-1 distribution except January and March, which follows log normal distribution.
 - Most of the different bright sunshine hour variables including monthly average data series follow normal distribution except February, which follow log normal distribution.

- Most of the different relative humidity variables including monthly average data series follow normal distribution except August, which follows log-normal distribution.
3. Comparison of chi-square value with critical chi-square value, it can be concluded that most of the chi-square value for the best fitted distribution for each climatologic parameters are within in the range of critical chi-square value with 95% confidence level, not including evaporation rate and bright sunshine hours.
 4. From increase in overall temperature, it can be concluded that Bangladesh is in the risk of climate change i.e. global warming. Again, increasing tendency of relative humidity along with increasing rate of rainfall in summer predominating wetter summer and decreasing tendency of relative humidity along with decreasing rate of rainfall in winter indicates drier winter.

5.3 RECOMMENDATIONS

- In this study, for maximum monthly average temperature data, maximum value of maximum temperature data series has considered for different type of temperature variables. Minimum value of maximum temperature data series could be considered for further analysis.
- Similarly, for minimum monthly average temperature data, minimum value of minimum temperature data series has considered for different type of temperature variables. Maximum value of minimum temperature data series could be considered for further analysis.
- In probability distribution study, only six probability distribution functions have considered. Other probability distribution functions can be considered for further study.

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APPENDIX-A

Trend analysis graphs & charts

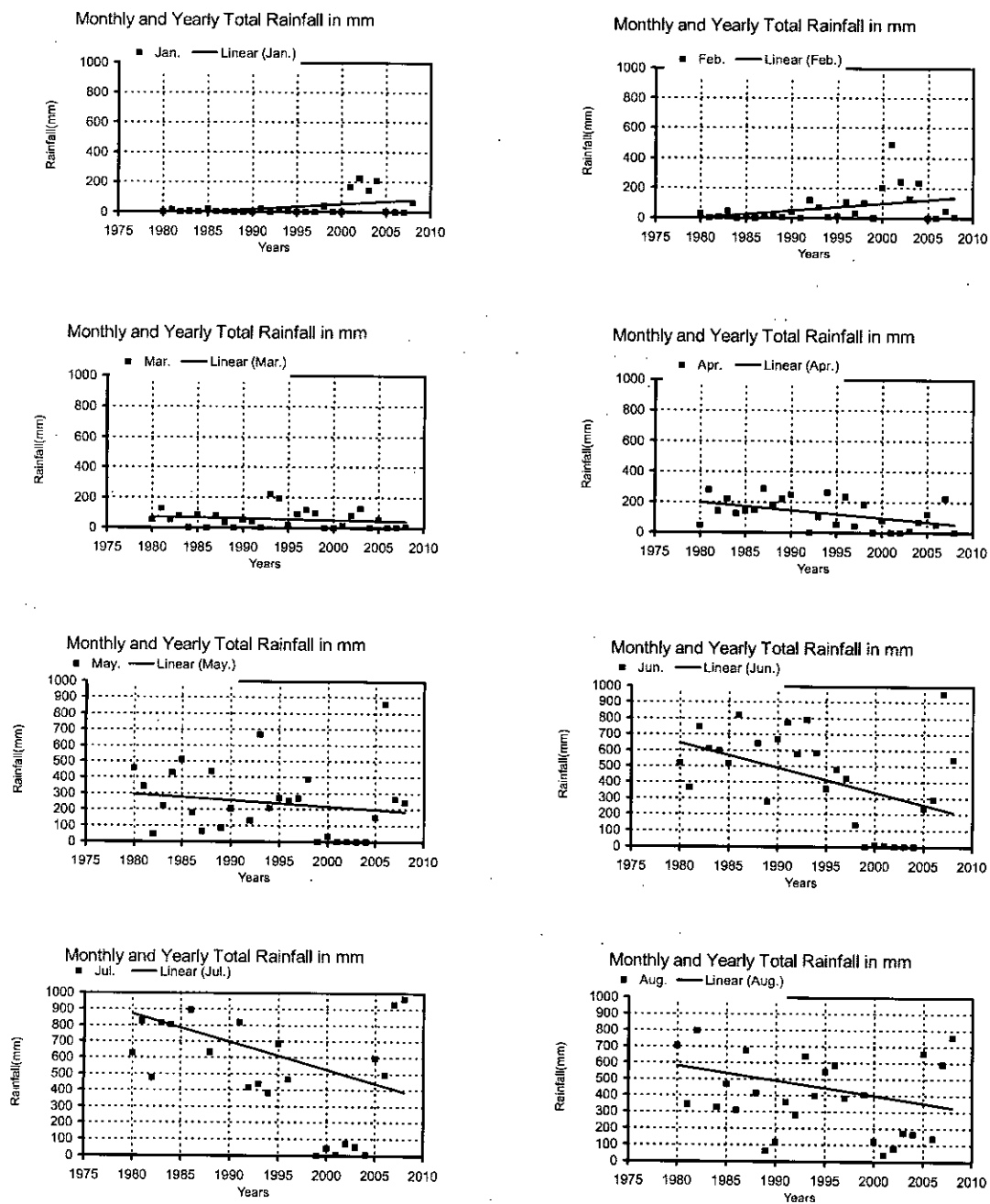


Figure A1: Output of trend analysis for rainfall variables (Chittagong)

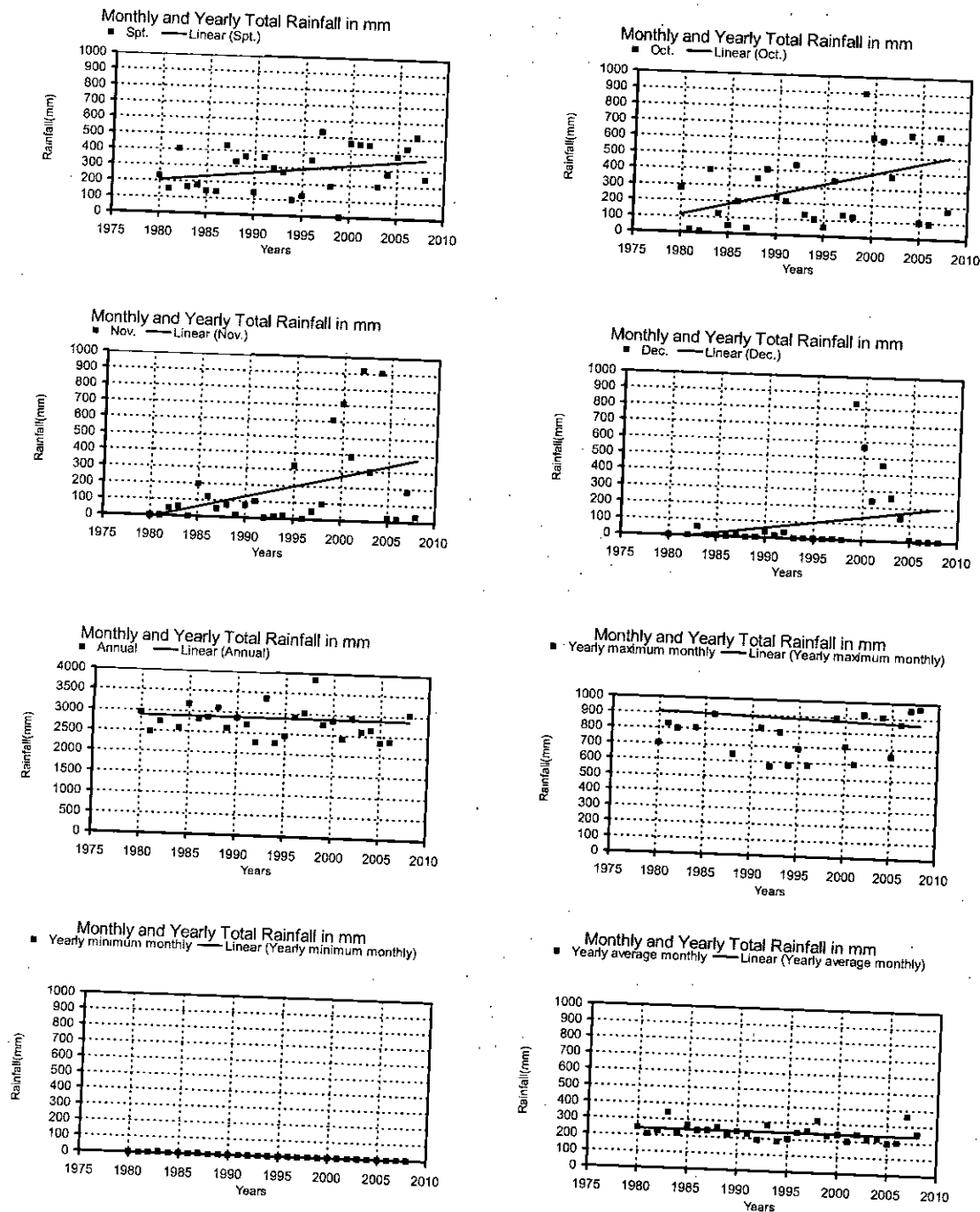


Figure A2: Output of trend analysis for rainfall variables (Chittagong)

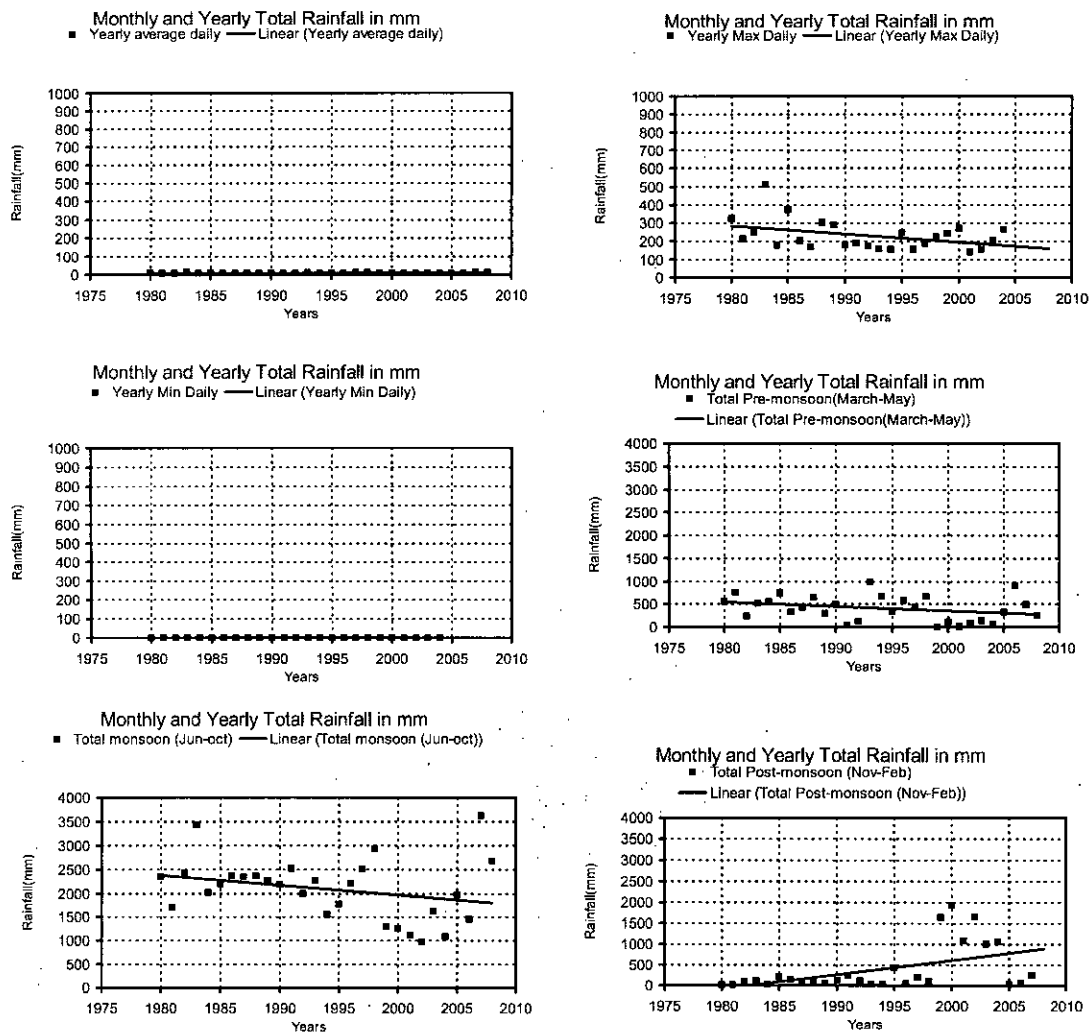


Figure A3: Output of trend analysis for rainfall variables (Chittagong)

P. O.

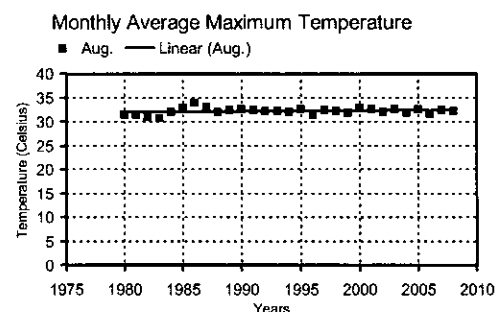
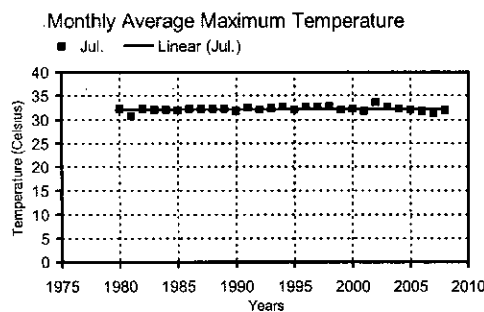
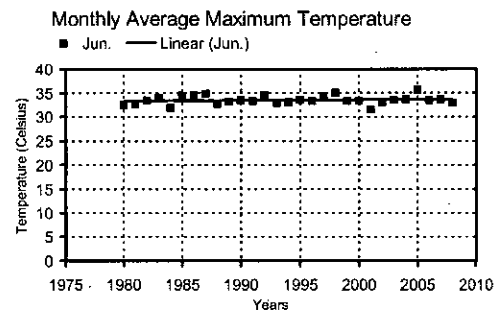
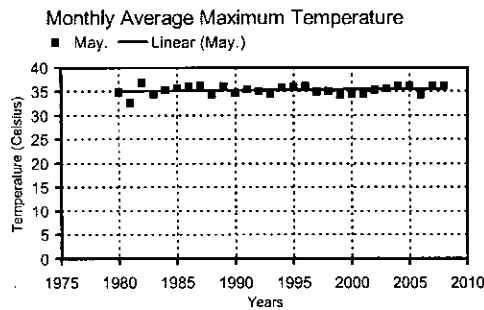
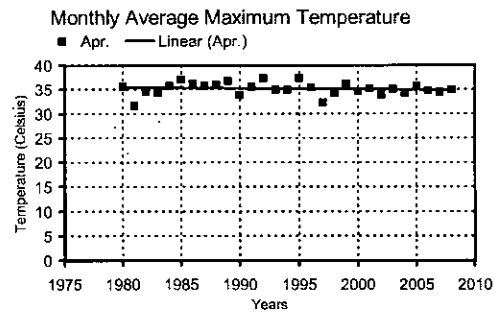
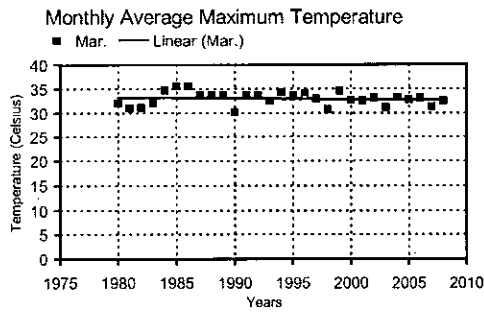
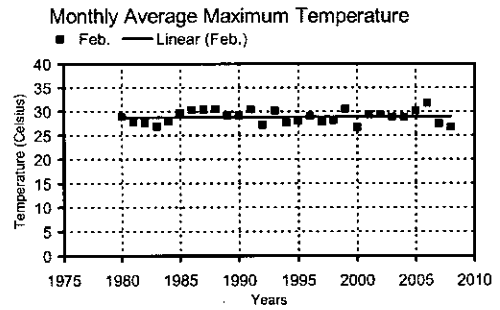
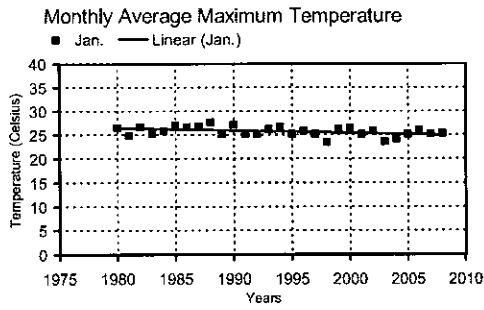


Figure A4: Output of trend analysis for temperature (Maximum) variables (Satkhira)

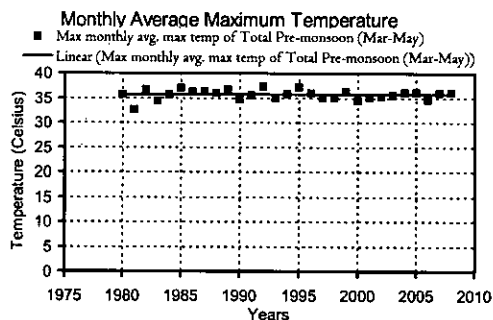
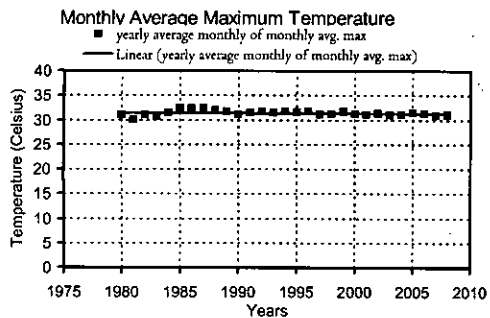
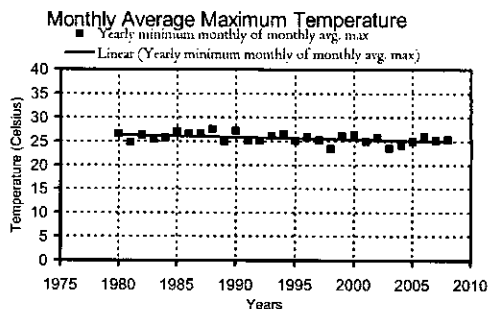
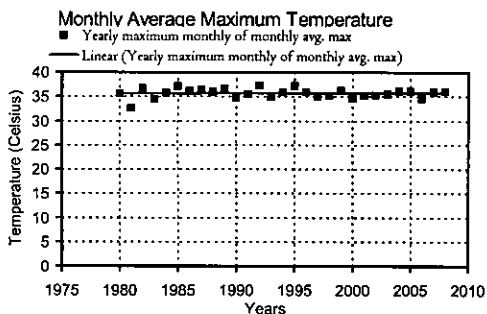
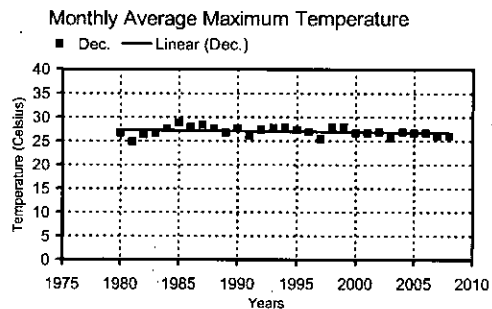
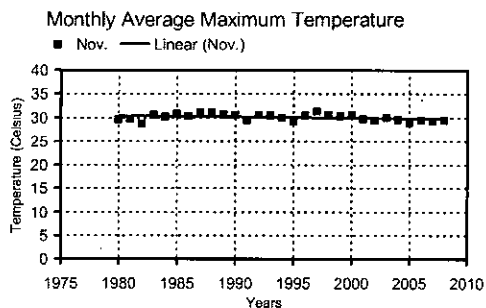
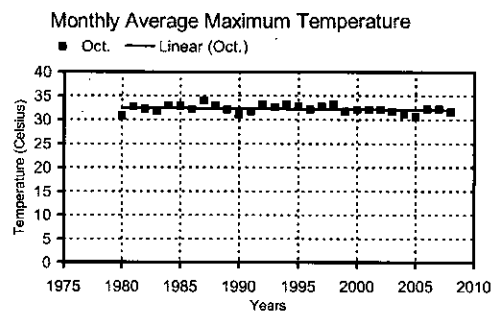
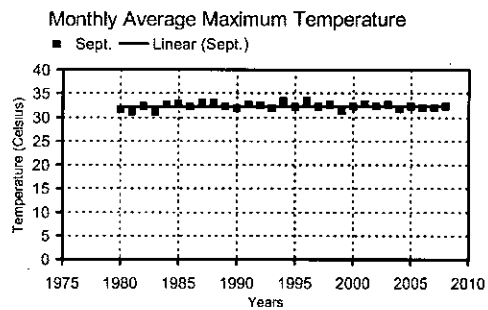


Figure A5: Output of trend analysis for temperature (Maximum) variables (Satkhira)

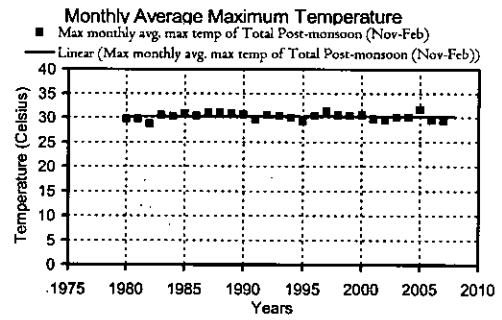
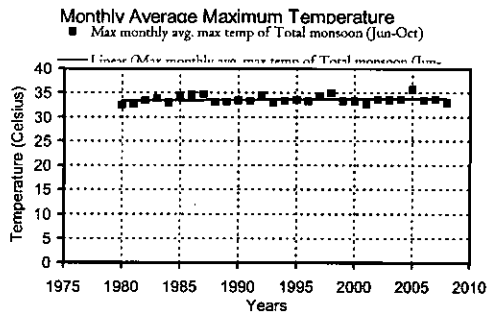


Figure A6: Output of trend analysis for temperature (Maximum) variables (Satkhira)

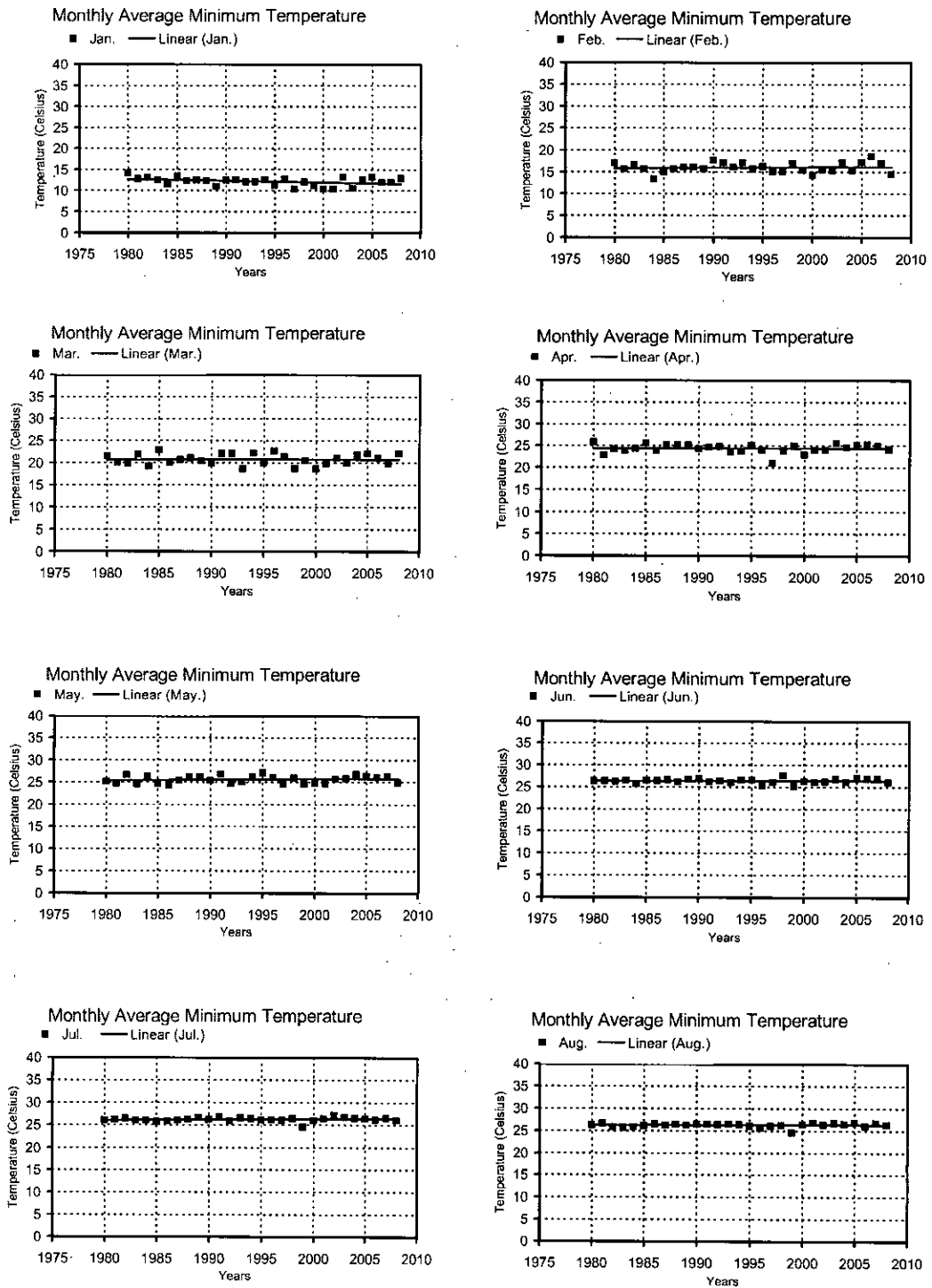


Figure A7: Output of trend analysis for temperature (Minimum) variables (Satkhira)

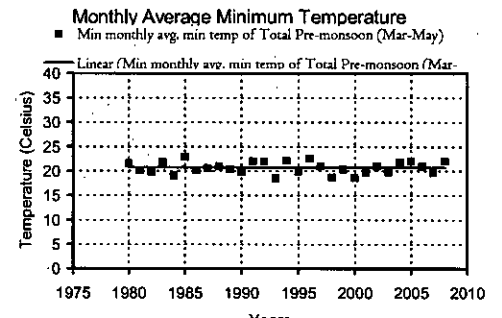
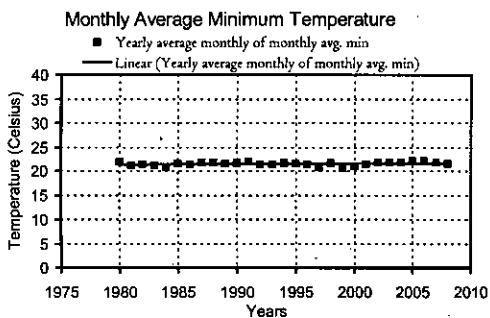
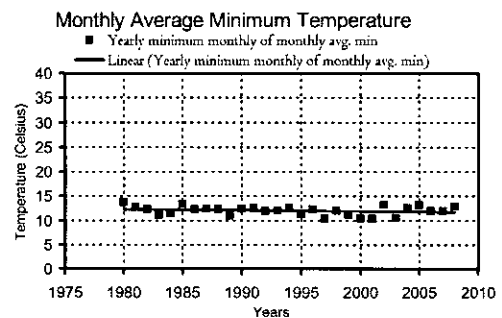
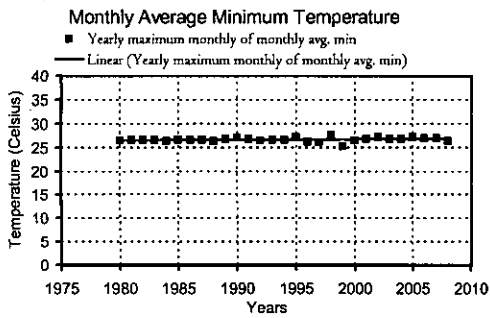
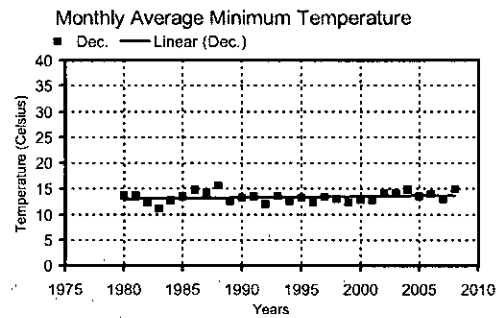
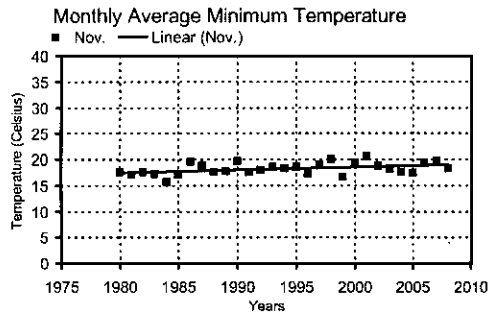
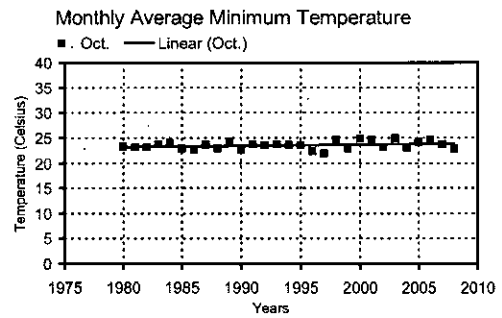
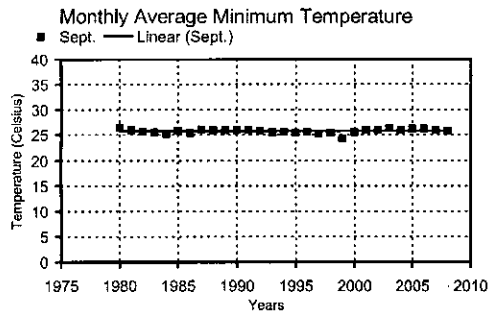


Figure A8: Output of trend analysis for temperature (Minimum) variables (Satkhira)

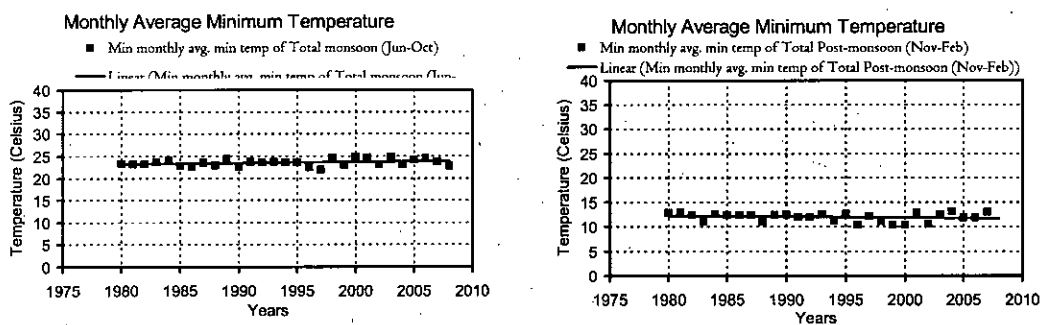


Figure A9: Output of trend analysis for temperature (Minimum) variables (Sathkira)

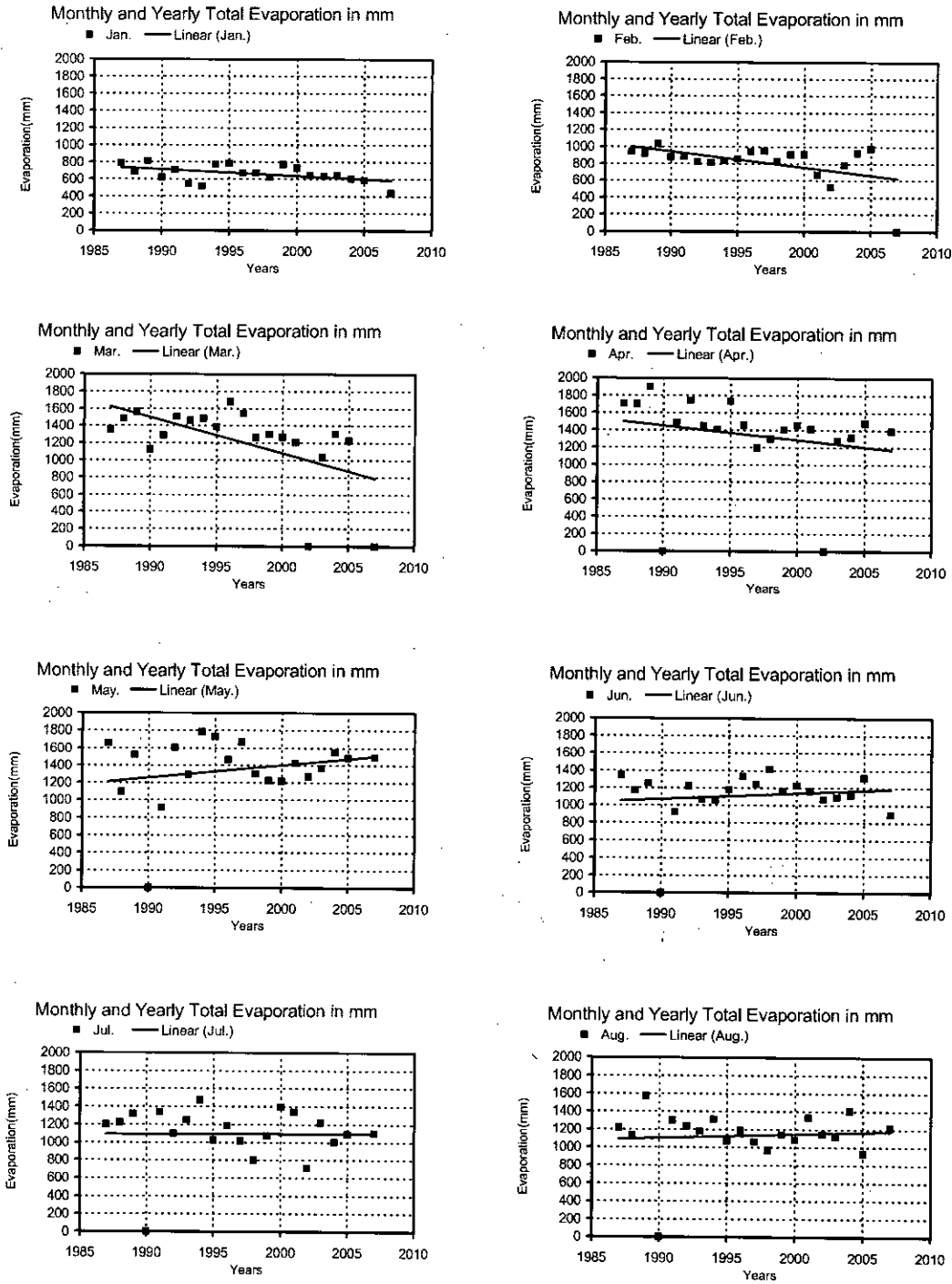


Figure A10: Output of trend analysis for evaporation variables (Mymensingh)

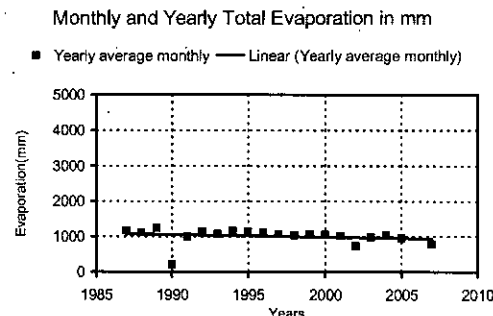
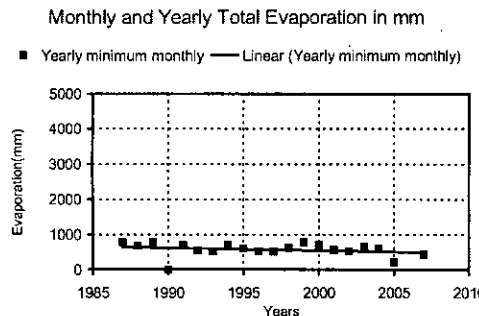
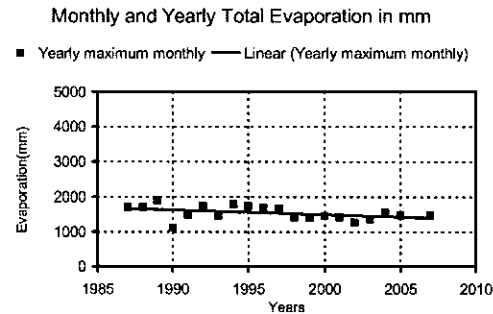
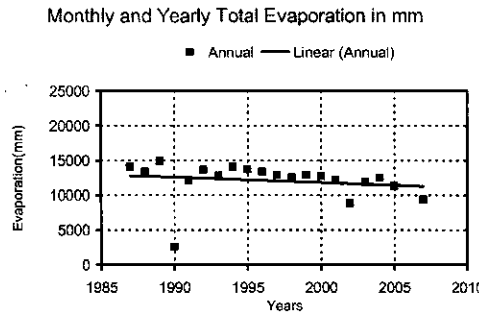
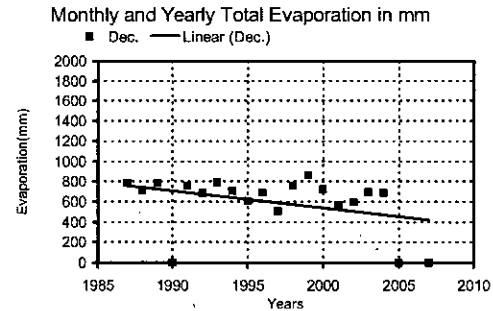
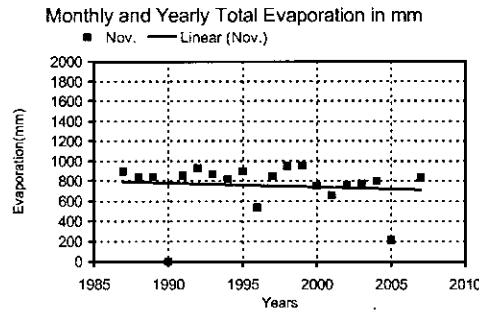
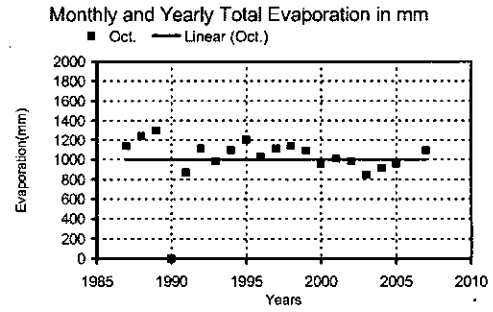
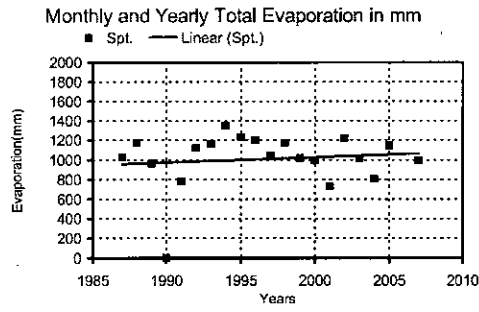


Figure A11: Output of trend analysis for evaporation variables (Mymensingh)

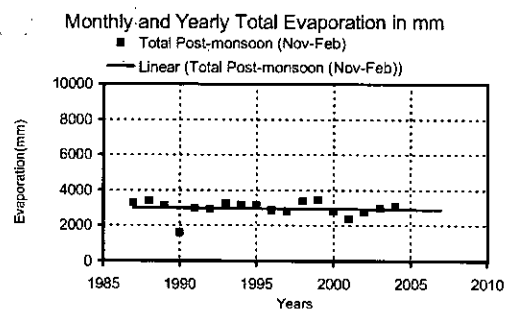
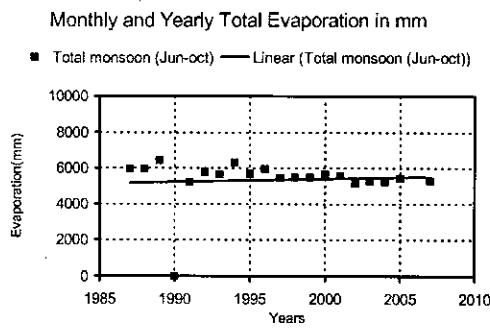
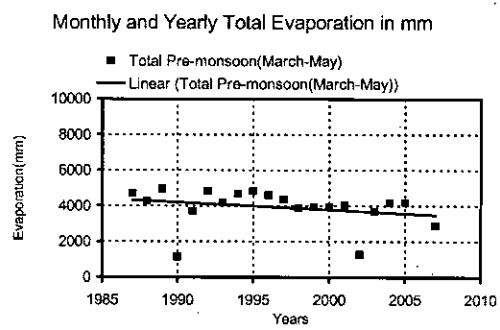
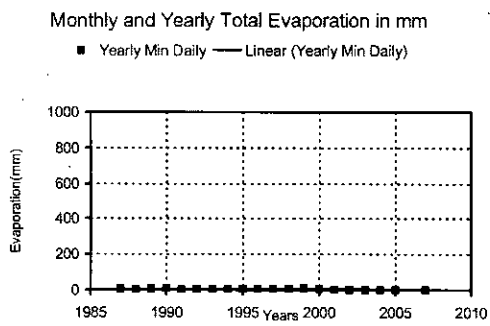
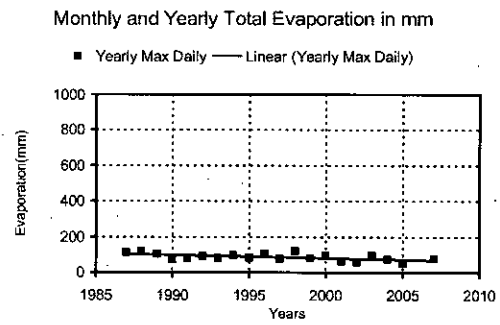
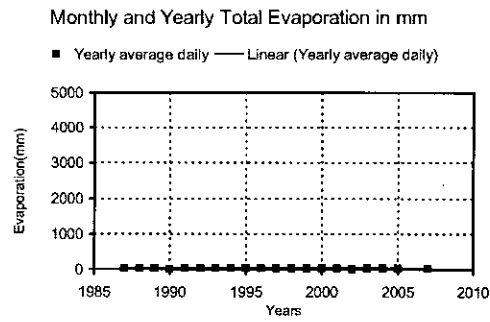


Figure A12: Output of trend analysis for evaporation variables (Mymensingh)

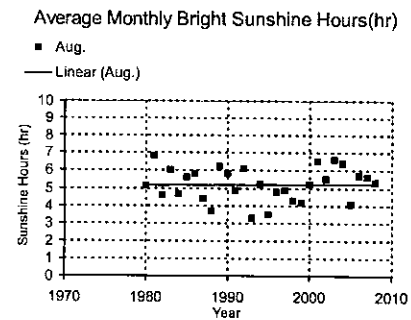
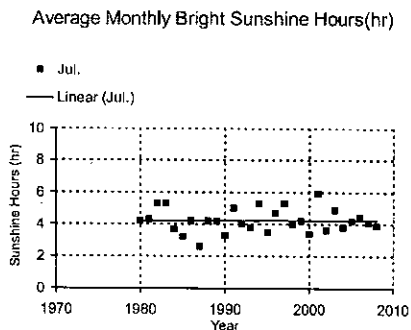
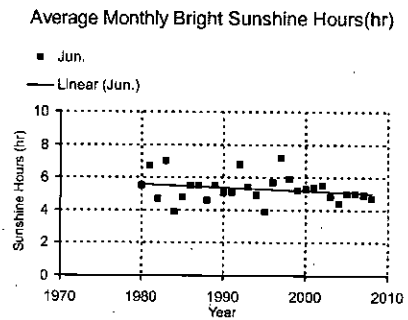
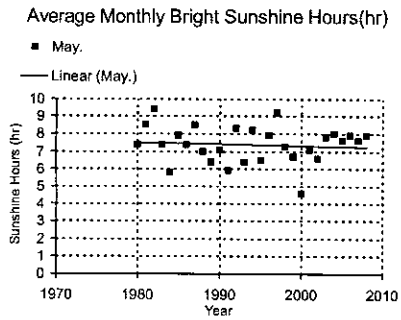
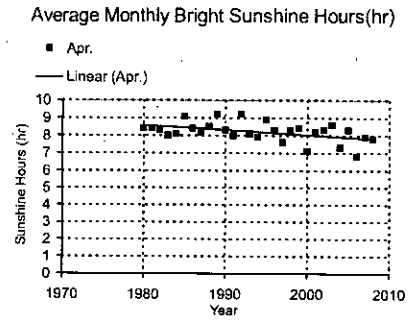
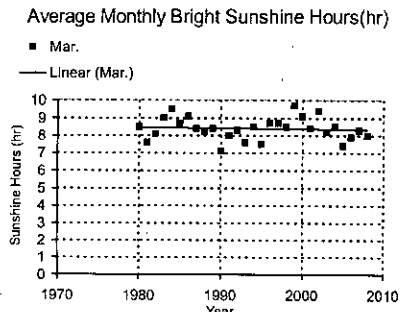
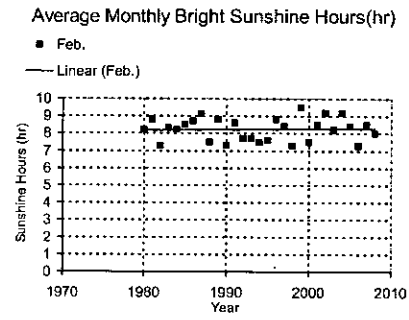
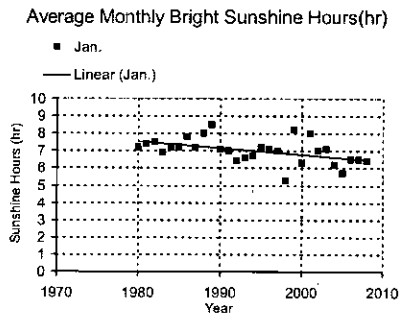


Figure 13: Output of trend analysis for bright sunshine hours variable(Rajshahi)

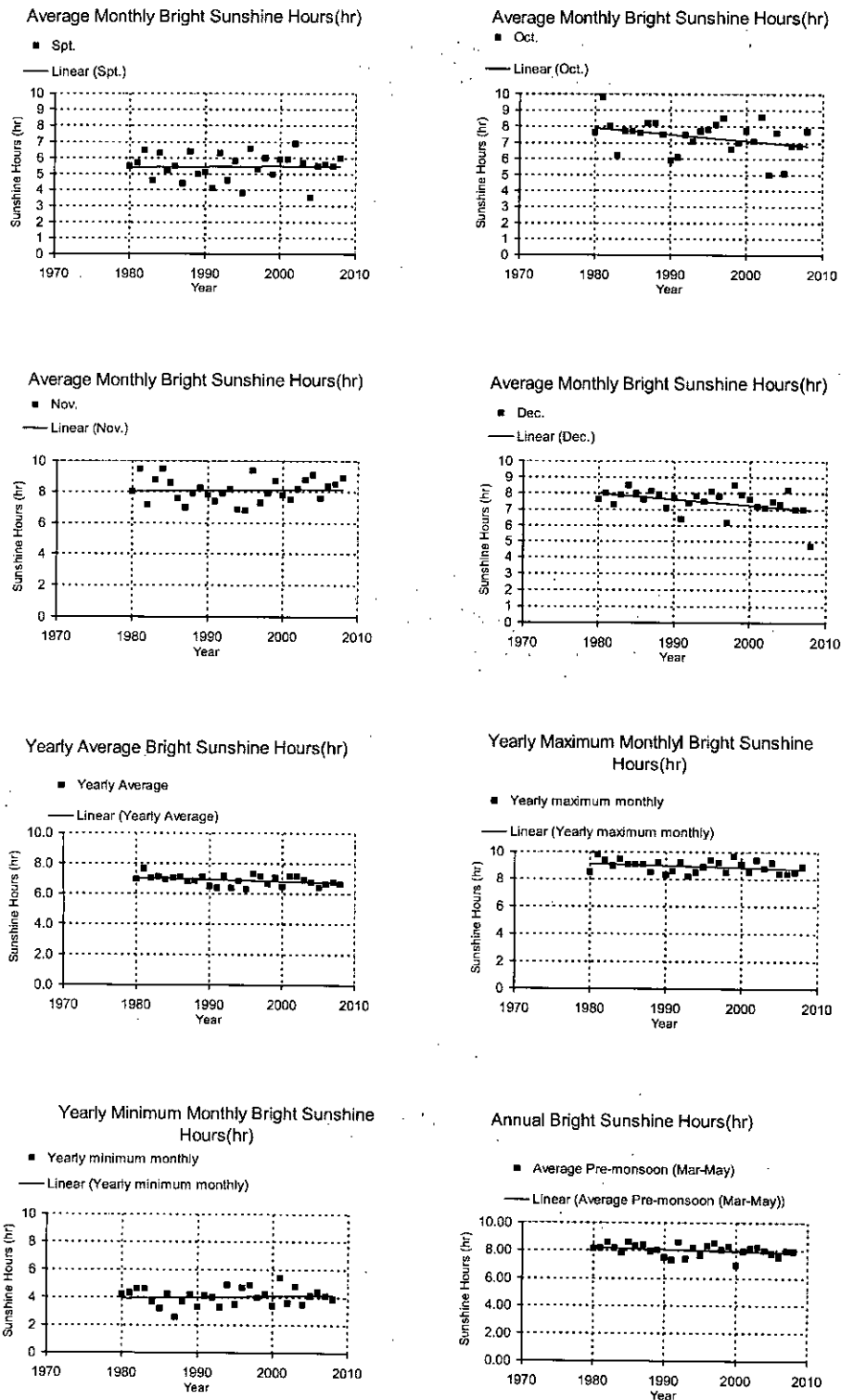


Figure 14: Output of trend analysis for bright sunshine hours variable(Rajshahi)

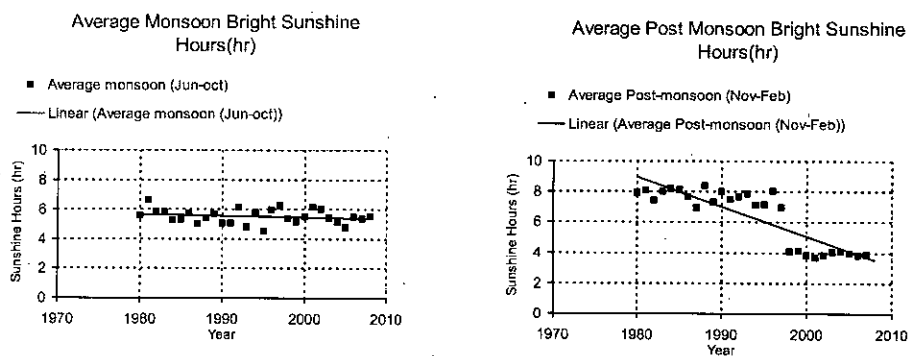


Figure 15: Output of trend analysis for bright sunshine hours variable(Rajshahi)

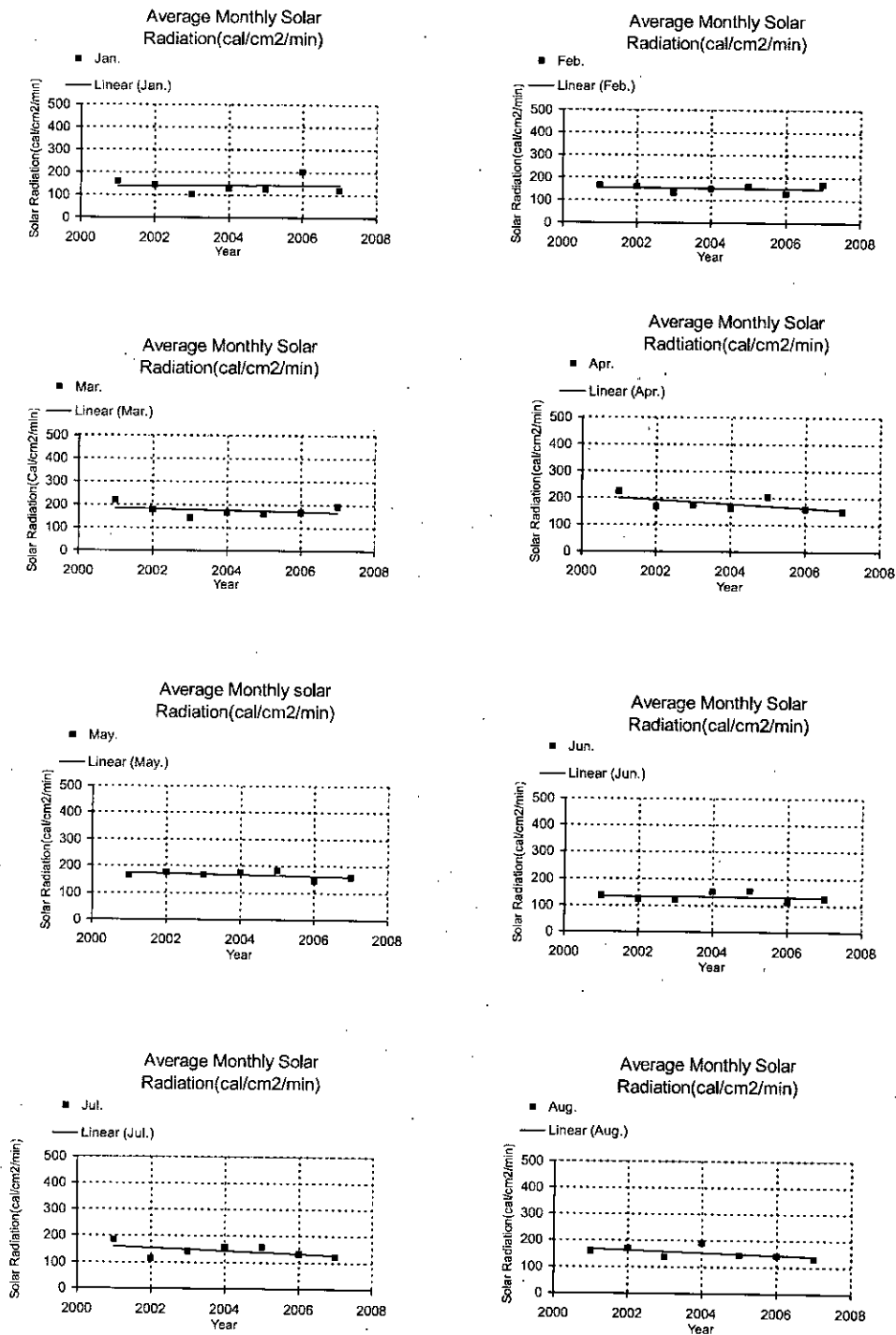


Figure 16: Output of trend analysis for solar radiation variables (Joydevpur)

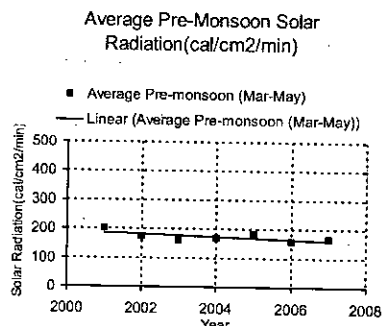
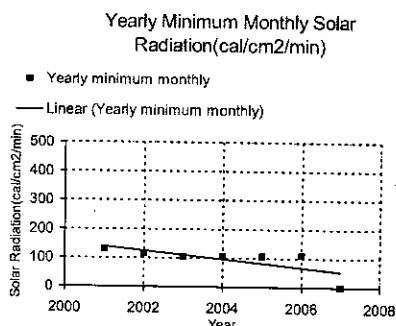
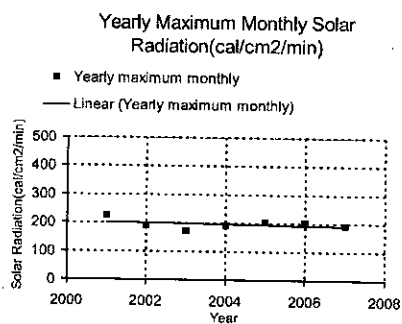
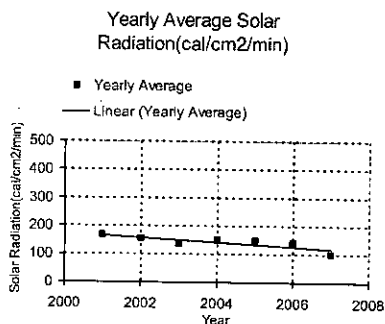
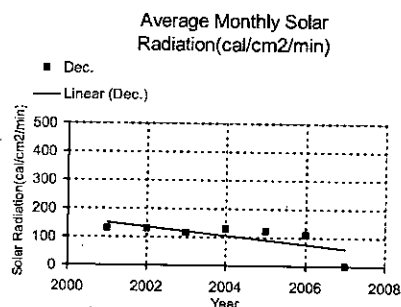
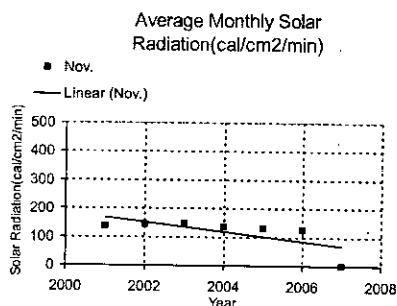
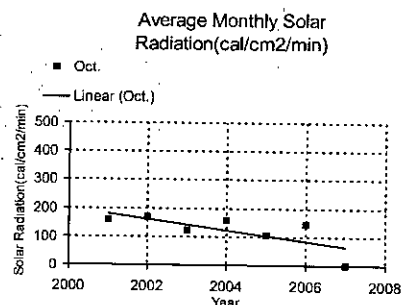
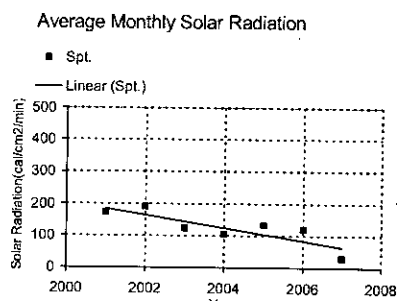


Figure 17: Output of trend analysis for solar radiation variables (Joydevpur)

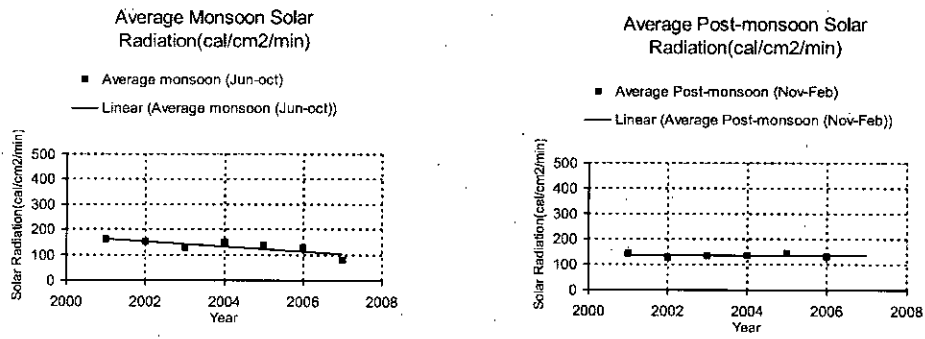
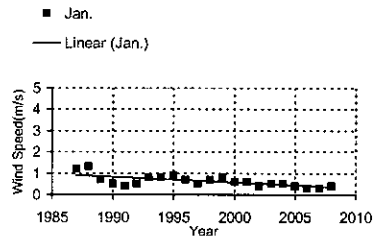
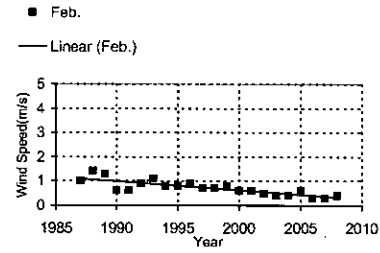


Figure 18: Output of trend analysis for solar radiation variables (Joydevpur)

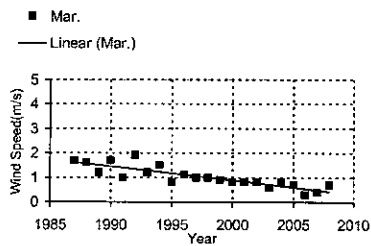
Average Monthly Wind speed(m/s)



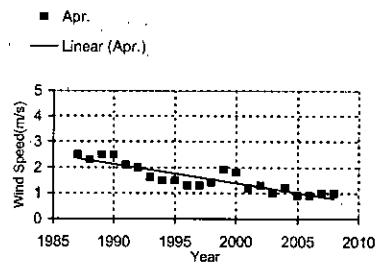
Average Monthly Wind Speed(m/s)



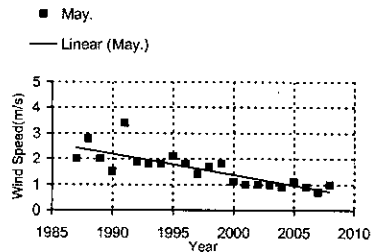
Average Monthly Wind Speed(m/s)



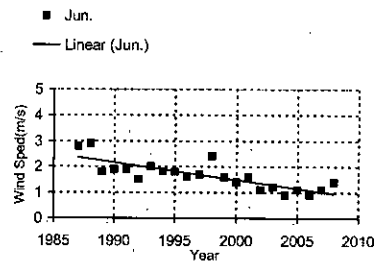
Average Monthly Wind Speed(m/s)



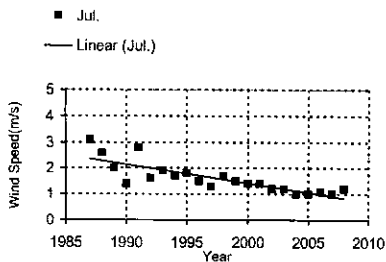
Average Monthly Wind Speed(m/s)



Average Monthly Wind Speed(m/s)



Average Monthly Wind Speed(m/s)



Average Monthly Wind Speed(m/s)

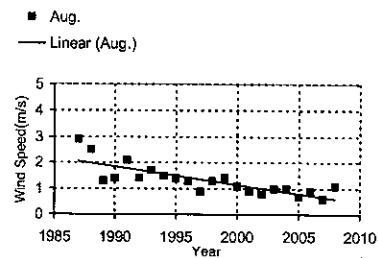
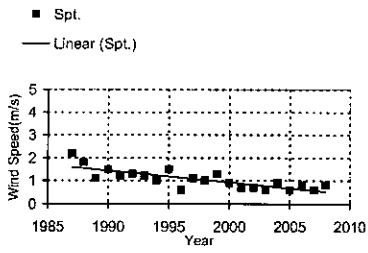
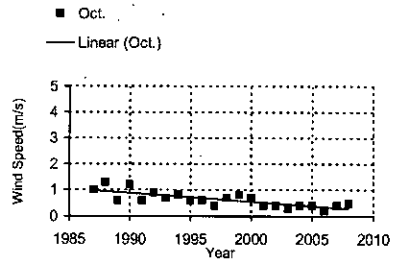


Figure 19: Output of trend analysis for wind speed variables (Tangail)

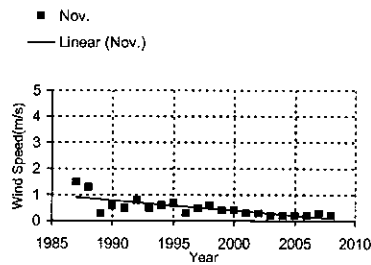
Average Monthly Wind Speed(m/s)



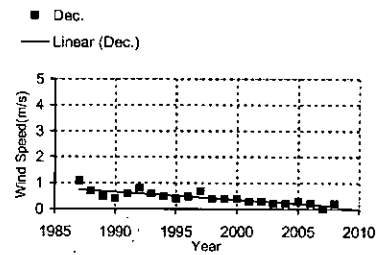
Average Monthly Wind Speed(m/s)



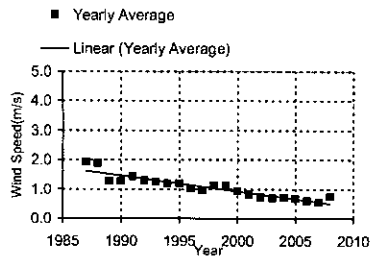
Average Monthly Wind Speed(m/s)



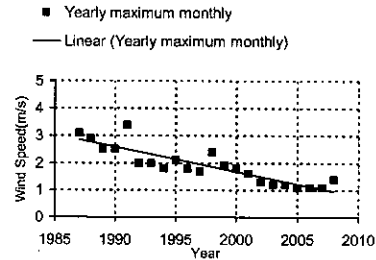
Average Monthly Wind Speed(m/s)



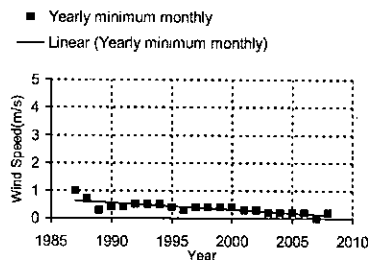
Yearly Average Wind Speed(m/s)



Yearly Maximum Monthly Wind Speed(m/s)



Yearly Minimum Monthly Wind Speed(m/s)



Average Pre-Monsoon Wind Speed(m/s))

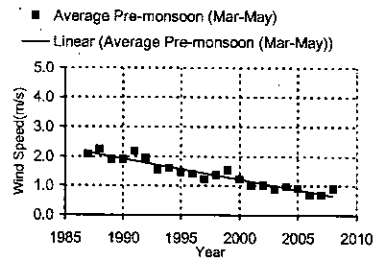
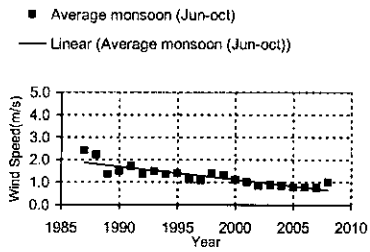


Figure 20: Output of trend analysis for wind speed variables (Tangail)

Average Monsoon Wind Speed(m/s)



Average Post-Monsoon Wind Speed(m/s)

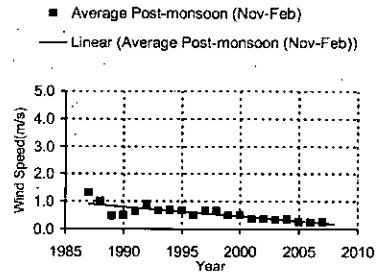


Figure 21: Output of trend analysis for wind speed variables (Tangail)

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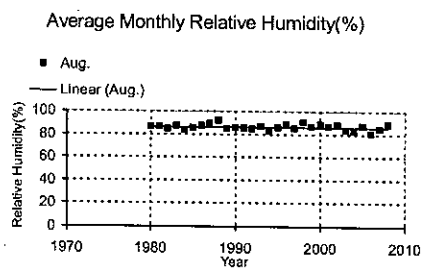
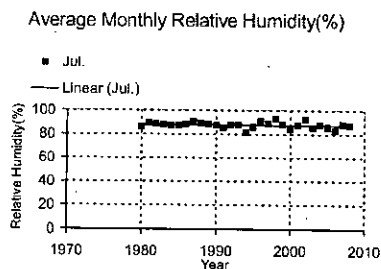
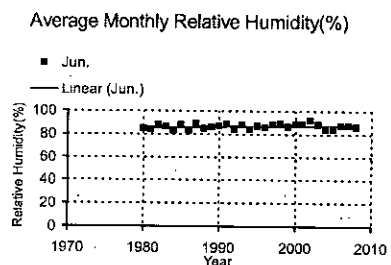
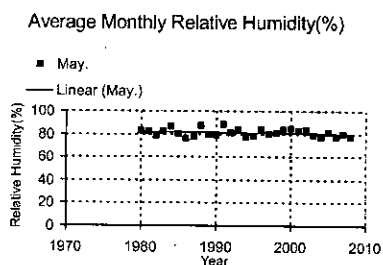
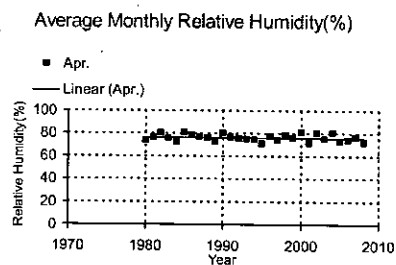
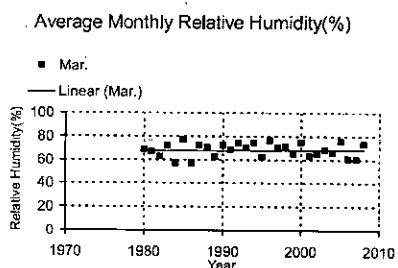
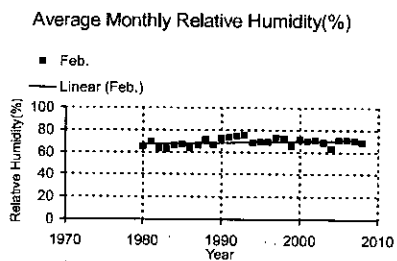
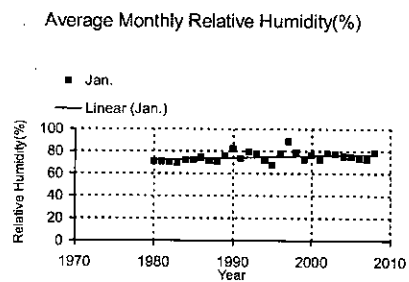


Figure 22: Output of trend analysis for relative humidity variables (Sylhet)

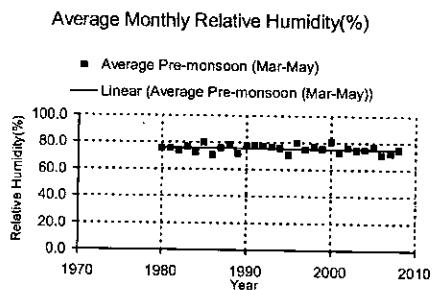
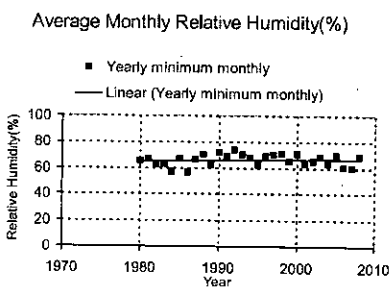
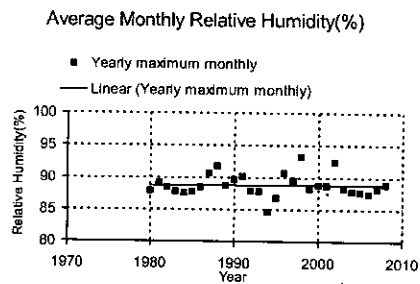
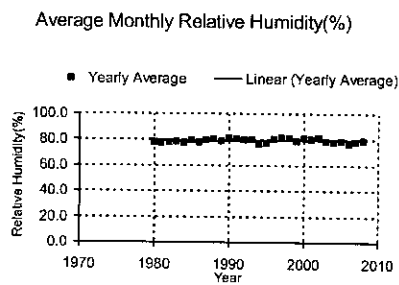
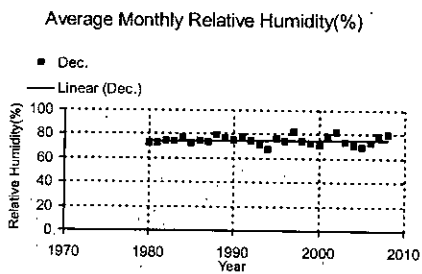
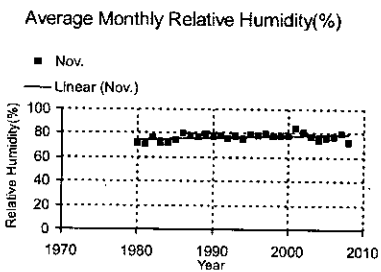
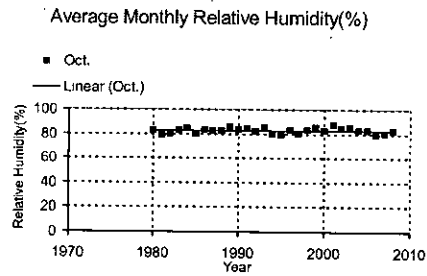
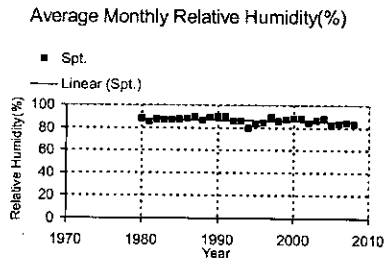


Figure 23: Output of trend analysis for relative humidity variables (Sylhet)

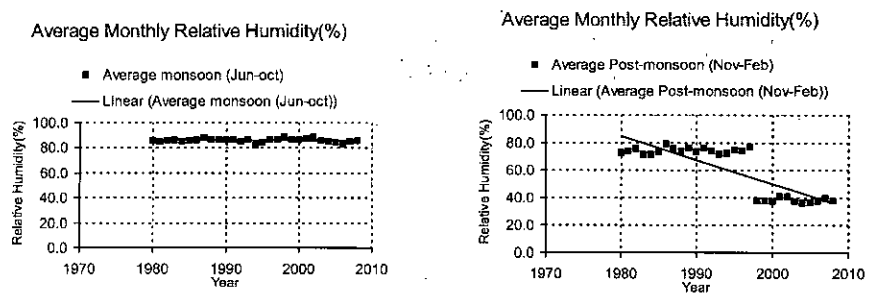


Figure 24: Output of trend analysis for relative humidity variables (Sylhet)

Table A2. Summary of Trend Analysis of Evaporation
Slope of Trend lines of historic data

Station	Region	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Spt.	Oct.	Nov.	Dec.	Annual	Total Pre- monsoon (Mar-May)	Total monsoon (Jun-oct)	Total Post- monsoon (Nov-Feb)	
1	Barisal	SW	1.7422	-5.1316	-7.5754	-10.265	-5.4026	6.1885	2.4477	8.8195	-2.8903	-4.5645	-7.6171	-12.843	-37.091	-23.242	10.001	-9.8696
2	Bogra	NW	-1.4438	-7.0284	-26.275	-31.721	-15.126	-5.0496	-4.6029	-15.074	-9.2046	-15.142	-16.676	-6.2945	-153.64	-73.123	-49.074	-17.43
3	Comilla	SE & EH	14.207	7.7732	17.17	-2.0281	-7.7053	-0.1772	-39.475	22.898	24.221	17.216	-28.393	-22.358	13.061	7.4368	24.682	25.16
4	Dinajpur	NW	3.318	-8.1272	-9.9717	-30.37	6.2461	-8.3082	13.199	10.931	9.3552	-6.8764	-17.259	-9.3678	-47.231	-34.096	18.3	-21.911
5	Faridpur	SW	-11.384	-15.352	-20.752	-39.912	-10.868	-18.445	-8.9959	-24.921	-21.548	-29.579	-22.177	-18.163	-240.1	-71.532	-101.49	-49.475
6	Joydevpur	NC	11.933	21.109	27.836	21.996	37.82	-5.6152	-16.155	-15.819	-13.223	-2.1981	0.0807	-18.088	49.675	87.651	-53.011	-3.7745
7	Khulna	SW	-14.48	-15.517	-33.576	-19.217	-7.0066	-7.7083	-21.12	-8.5591	-18.846	-18.011	-35.854	-33.84	-233.73	-59.799	-74.245	-26.94
8	Mymensingh	NC	-4.031	-10.289	-30.146	-27.215	14.744	10.488	0.4138	8.2405	5.4283	-1.3612	2.8308	-2.0372	-28.859	-42.616	23.209	-5.2415
9	Rajshahi	NW	20.764	35.392	35.915	43.507	47.132	40.172	-11.149	13.521	6.8496	-10.626	-24.5	-20.564	176.41	126.55	38.768	17.553
10	Rangamati	SE & EH	36.732	33.834	28.956	33.866	25.687	24.987	30.438	33.57	36.253	40.1	22.681	27.961	375.06	88.509	165.35	147.14
11	Rangpur	NW	-9.2372	-26.093	-31.483	-36.668	4.7946	5.4106	-7.4297	2.6982	14.128	-18.306	-17.553	-10.454	-130.19	-63.356	-3.499	-16.661
12	Srimongol	NE	19.058	19.452	-13.933	-13.502	-13.514	-7.5272	-8.509	-11.619	-0.0081	-9.6861	-32.82	-32.519	-105.13	-77.009	-37.35	-72.546

Table A5. Summary of Trend Analysis of Solar Radiation

Slope of Trend lines of historic data

Station	Region	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Spt.	Oct.	Nov.	Dec.	Yearly Average	Average Pre-monsoon (Mar-May)	Average monsoon (Jun-oct)	Average Post-monsoon (Nov-Feb)
1 Barisal	SW	19.456	24.632	28.061	36.203	33.566	25.320	-5.064	-11.926	-5.195	-13.066	-3.654	-2.652	10.617	32.610	-1.986	29.104
2 Bogra	NW	-4.405	-6.261	-6.547	-10.920	1.071	-8.087	-4.978	-28.208	-2.686	3.138	1.754	-18.894	-6.430	-5.465	-16.290	-7.756
3 Comilla	SE & EH	-6.422	-0.329	-3.427	-11.620	-3.269	-2.621	-11.627	-12.865	-5.661	-3.541	-6.602	-10.478	-6.538	-6.105	-7.263	-6.793
4 Dhaka	NC	3.865	-6.419	4.008	7.007	7.516	17.821	-4.342	-13.659	-22.839	-9.766	5.307	1.064	0.171	6.177	-12.322	-1.277
5 Faridpur	SW	4.231	-6.550	1.605	-10.566	-6.940	-13.386	-6.489	-3.272	-28.089	-36.926	-43.680	-40.694	-15.896	-5.300	-17.632	-42.095
6 Joydevpur	NC	0.894	-0.824	-3.016	-7.606	-2.454	-0.608	-4.849	-4.380	-20.158	-19.470	-16.451	-15.193	-7.843	-4.359	-9.893	0.085
7 Khulna	SW	-1.587	-25.274	-3.676	-9.007	-18.688	-24.847	-30.759	-19.114	-69.659	-71.836	-82.272	-71.655	-35.698	-10.457	-43.243	-84.343
8 Mymensingh	NC	-7.501	-2.571	2.448	-6.044	0.519	-8.898	-5.640	-19.847	-24.964	-23.920	-16.653	-15.738	-10.879	-1.026	-12.428	-1.443
9 Rangpur	NW	8.062	-17.708	-6.610	1.193	9.737	-0.130	-12.300	-18.884	-17.772	-10.781	-28.792	-23.311	-9.775	1.440	-11.973	-16.443
10 Srimongol	NE	-2.669	3.540	-5.812	-5.847	4.959	0.526	0.648	-3.958	-23.573	-14.717	-16.824	-18.036	-6.814	-2.233	-8.215	-6.166

Table A7. Summary of Trend Analysis of Bright Sunshine Hours
Slope of Trend lines of historic data

Station	Region	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Spt.	Oct.	Nov.	Dec.	Yearly Average	Average Pre-monsoon (Mar-May)	Average monsoon (Jun-oct)	Average Post-monsoon (Nov-Feb)	
1	Barisal	SW	-0.0434	-0.0125	-0.0319	-0.0373	-0.0463	-0.0559	-0.0176	-0.0088	-0.0562	-0.0437	-0.0252	-0.0403	-0.0349	-0.0385	-0.0364	-0.0210
2	Bhola	CR	-0.0196	0.0169	-0.0188	0.0240	0.0214	-0.0117	0.0047	0.0219	-0.0227	-0.0389	0.0265	-0.0103	-0.0005	0.0089	-0.0093	0.0154
3	Bogra	NW	-0.1178	-0.0716	-0.0423	-0.0464	-0.0146	-0.0435	0.0122	-0.0104	-0.0295	-0.0605	-0.0465	-0.0732	-0.0453	-0.0344	-0.0264	-0.0686
4	Chandpur	SE & EH	-0.0129	0.0071	0.0143	0.0386	0.0237	0.0067	0.0143	0.0204	-0.0075	-0.0388	-0.0127	-0.0303	0.0019	0.0255	-0.0010	-0.0011
5	Chittagong	SE & EH	-0.0492	-0.0435	-0.0308	0.0017	-0.0231	0.0260	-0.0077	0.0080	-0.0361	-0.0300	-0.0122	-0.0345	-0.0193	-0.0174	-0.0080	-0.0608
6	Comilla	SE & EH	-0.0667	-0.0130	-0.0201	0.0289	-0.0038	-0.0110	0.0294	0.0210	-0.0017	-0.0439	0.0021	-0.0027	-0.0068	0.0017	-0.0012	-0.0237
7	Cox's Bazar	CR	-0.0345	0.0173	-0.0067	0.0683	-0.0278	0.0859	0.0203	0.0144	-0.0159	-0.0186	0.0100	-0.0043	0.0090	0.0112	0.0172	-0.0033
8	Dhaka	NC	-0.0963	-0.0602	-0.0240	-0.0060	-0.0252	-0.0733	-0.0189	-0.0387	-0.0570	-0.0918	-0.0651	-0.0831	-0.0533	-0.0184	-0.0559	-0.0552
9	Dinaipur	NW	-0.0247	-0.0238	-0.0179	-0.0743	0.0436	-0.0456	0.0113	-0.0171	0.0196	-0.0228	-0.0123	-0.0477	-0.0176	-0.0162	-0.0109	-0.0231
10	Faridpur	SW	-0.0783	-0.0418	-0.0035	0.0259	0.0148	-0.0221	0.0089	0.0242	-0.0090	-0.0701	0.0016	-0.0620	-0.0176	0.0124	-0.0136	-0.0686
11	Feni	SE & EH	-0.0619	-0.0087	0.0076	0.0330	-0.0018	0.0064	0.0024	0.0264	-0.0230	-0.0534	0.0097	-0.0427	-0.0088	0.0129	-0.0082	-0.0251
12	Hatiya	CR	-0.0553	0.0010	-0.0316	0.0220	0.0067	-0.0197	-0.0102	0.0309	0.0081	-0.0117	0.0192	-0.0631	-0.0086	-0.0010	-0.0005	-0.0476
13	Ishurdi	NW	-0.0578	-0.0288	0.0111	-0.0120	0.0103	-0.0108	0.0135	0.0112	0.0078	-0.0444	0.0109	-0.0555	-0.0120	0.0031	-0.0045	-0.0471
14	Jessore	SW	-0.0313	-0.0116	0.0048	0.0037	0.0061	-0.0140	0.0091	-0.0002	-0.0141	-0.0480	-0.0247	-0.0412	-0.0135	0.0049	-0.0134	-0.0250
15	Khepupara	CR	0.0122	0.0469	0.0288	0.0391	0.0532	-0.0205	0.0264	-0.0147	0.0065	0.0560	0.0432	-0.0178	0.0216	0.0404	0.0107	-0.0499
16	Khuina	SW	-0.0611	-0.0141	-0.0277	-0.0033	0.0256	-0.0108	-0.0187	0.0114	0.0076	-0.0621	-0.0034	-0.0635	-0.0183	-0.0018	-0.0145	-0.0343
17	Kutubdia	SE & EH	-0.0296	0.0005	-0.0291	0.0280	-0.0315	0.0056	0.0102	0.0020	-0.0443	-0.0016	0.0338	-0.0799	-0.0113	-0.0109	-0.0056	-0.0412
18	Madaripur	SW	0.0104	0.0423	0.0373	0.0516	0.0981	0.0108	0.0239	0.0890	0.0205	0.0258	0.0895	0.0464	0.0455	0.0623	0.0340	-0.0162
19	M.Court	SE & EH	-0.0623	-0.0023	0.0041	0.0276	-0.0150	0.0196	0.0333	0.0183	0.0093	-0.0470	0.0217	-0.0795	-0.0060	0.0056	0.0067	-0.0573
20	Mongla	CR	-0.3060	-0.3452	-0.2321	-0.0512	-0.0929	0.1024	-0.1214	-0.1738	-0.0821	0.0560	-0.0560	-0.3095	-0.1343	-0.1254	-0.0438	-1.0161
21	Mymensingh	NC	-0.0797	-0.0232	-0.0267	-0.0049	0.0258	-0.0410	0.0113	0.0067	0.0259	-0.0366	-0.0133	-0.0483	-0.0170	-0.0020	-0.0067	-0.0317
22	Patuakhali	CR	0.0187	0.0740	0.0297	0.0787	0.0672	0.0266	0.0421	0.0543	0.0518	0.0678	0.0957	0.0013	0.0505	0.0579	0.0485	0.0301
23	Rajshahi	NW	-0.0378	0.0032	-0.0048	-0.0283	-0.0091	-0.0198	0.0024	0.0041	0.0028	-0.0407	0.0049	-0.0368	-0.0133	-0.0141	-0.0102	-0.1946
24	Rangamati	SE & EH	0.0436	0.0579	0.0388	0.0412	-0.0028	-0.0002	0.0654	0.0201	0.0305	0.0158	0.0677	0.0078	0.0322	0.0258	0.0263	-0.0281
25	Rangpur	NW	-0.1049	-0.0376	-0.0008	-0.0376	-0.0012	-0.0733	0.0044	-0.0183	-0.0043	-0.0326	-0.0564	-0.0416	-0.0337	-0.0132	-0.0248	-0.0553
26	Sandwip	CR	-0.0830	-0.0401	-0.0178	0.0350	-0.0110	-0.0507	0.0125	-0.0009	-0.0193	-0.0636	0.0273	-0.0715	-0.0236	0.0021	-0.0244	-0.0834
27	Satkhira	SW	-0.0297	-0.0111	-0.0385	-0.0088	0.0084	0.0424	0.0146	0.0310	-0.0155	-0.1350	-0.0850	-0.0952	-0.0269	-0.0130	-0.0125	-0.0208
28	Shitakunda	NE	-0.0015	0.0291	0.0179	0.0554	0.0330	0.0607	0.0344	0.0379	0.0191	0.0115	0.0505	0.1112	0.0383	0.0354	0.0327	0.0586
29	Srimongol	NE	-0.0911	-0.0101	-0.0111	0.0389	0.0141	-0.0880	0.0015	0.0208	0.0052	-0.0131	-0.0045	-0.0739	-0.0176	0.0140	-0.0147	-0.0844
30	Sylhet	NE	-0.0804	-0.0532	-0.0241	0.0019	-0.0143	-0.0544	-0.0003	-0.0097	0.0032	-0.0539	-0.0246	-0.0288	-0.0122	-0.0230	-0.0230	-0.0410
31	Tangail	NC	-0.0651	0.0047	0.0272	0.0229	0.0456	-0.0365	-0.0011	0.0283	0.0227	-0.0357	0.0165	-0.0801	-0.0042	0.0319	-0.0045	-0.0802
32	Teknaf	CR	-0.0248	-0.0062	-0.0345	0.0037	-0.0747	0.0181	0.0019	-0.0085	-0.0420	-0.0267	0.0239	-0.0304	-0.0167	-0.0352	-0.0114	-0.0153

APPENDIX-B

Probability distribution charts

Table B1. Determination of Best Fit Distribution
Chi-square values of Rainfall Data for different probability distributions
January

							Scaling						Appendix B	
							Rank	3	4	6	1	5	2	
							Comparison	7.01	10.00	17.01	1.00	15.25	1.28	
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I		
1 Barisal	6.45	97.03	11090.64	1.57	211.45	15.07	0.0006	0.0085	0.9710	0.0001	0.0185	0.0013		
2 Bhola	43.38	64.62	122.56	5.65	72.21	11.52	0.1356	0.2020	0.3831	0.0176	0.2257	0.0360		
3 Bogra	5132.76	72.21	118.41	5.60	93.66	8.11	0.9451	0.0133	0.0218	0.0010	0.0172	0.0015		
4 Chandpur	20.43	57.03	36.55	5.11	74.50	8.41	0.1011	0.2823	0.1809	0.0253	0.3688	0.0416		
5 Chittagong	47.16	71.52	243.77	4.49	214.76	12.58	0.0794	0.1203	0.4102	0.0076	0.3614	0.0212		
6 Chuadanga	6.60	15.25	8.07	5.01	35.38	1.41	0.0920	0.2126	0.1125	0.0699	0.4933	0.0197		
7 Comilla	16.74	46.00	28.80	3.96	58.86	2.97	0.1064	0.2924	0.1830	0.0252	0.3741	0.0189		
8 Cox's Bazar	32.75	63.93	83.72	4.49	47.14	10.34	0.1351	0.2638	0.3454	0.0185	0.1945	0.0427		
9 Dhaka	18.19	45.66	32.91	3.60	60.10	4.31	0.1104	0.2771	0.1997	0.0218	0.3648	0.0262		
10 Dinajpur	17.77	33.59	22.22	2.85	131.78	6.60	0.0827	0.1563	0.1034	0.0133	0.6135	0.0307		
11 Faridpur	42.84	58.07	74.15	3.59	58.32	10.62	0.1730	0.2345	0.2995	0.0145	0.2355	0.0429		
12 Feni	31.71	50.83	66.09	3.63	48.80	7.94	0.1517	0.2432	0.3162	0.0174	0.2335	0.0380		
13 Hatiya	51.75	71.86	336.28	5.73	67.11	13.22	0.0948	0.1316	0.6159	0.0105	0.1229	0.0242		
14 Ishurdi	11.96	46.69	18.08	9.15	98.87	2.54	0.0639	0.2493	0.0965	0.0488	0.5279	0.0136		
15 Jessore	8.37	33.59	14.03	3.50	72.26	1.64	0.0627	0.2518	0.1052	0.0263	0.5418	0.0123		
16 Khepupara	5.46	80.48	344.32	5.51	183.44	9.65	0.0087	0.1280	0.5475	0.0088	0.2917	0.0153		
17 Khulna	31.57	63.93	49.89	7.23	76.82	11.72	0.1309	0.2651	0.2069	0.0300	0.3185	0.0486		
18 Kutubdia	46.66	71.86	141.72	10.73	68.75	13.14	0.1322	0.2037	0.4016	0.0304	0.1948	0.0372		
19 M.Court	4.17	79.79	1070.85	5.98	168.76	11.83	0.0031	0.0595	0.7983	0.0045	0.1258	0.0088		
20 Madaripur	27.63	71.52	87.96	3.91	80.22	6.69	0.0994	0.2573	0.3165	0.0141	0.2886	0.0241		
21 Mongla	13.02	27.00	19.43	5.14	293.46	6.67	0.0357	0.0740	0.0533	0.0141	0.8046	0.0183		
22 Mymensingh	6.45	88.41	355.78	2.57	112.28	13.95	0.0111	0.1526	0.6140	0.0044	0.1938	0.0241		
23 Patuakhali	19.43	54.50	34.68	4.84	71.71	3.70	0.1029	0.2886	0.1836	0.0256	0.3797	0.0196		
24 Rajshahi	173.13	59.10	76.64	1.99	94.88	5.79	0.4207	0.1436	0.1862	0.0048	0.2306	0.0141		
25 Rangamati	88.33	75.93	311.33	4.94	68.22	17.21	0.1561	0.1342	0.5501	0.0087	0.1205	0.0304		
26 Rangpur	10.86	40.48	15.27	1.96	69.64	2.80	0.0770	0.2871	0.1083	0.0139	0.4939	0.0198		
27 Sandwip	2.56	69.50	1556.26	3.82	168.55	12.17	0.0014	0.0383	0.8585	0.0021	0.0930	0.0067		
28 Satkhira	92.86	71.86	52.86	1.44	107.58	8.19	0.2774	0.2146	0.1579	0.0043	0.3213	0.0245		
29 Shitakunda	100.11	79.45	322.57	4.01	80.10	8.71	0.1683	0.1335	0.5422	0.0067	0.1346	0.0146		
30 Srimangal	46.96	61.64	159.09	4.22	72.18	5.59	0.1343	0.1763	0.4550	0.0121	0.2064	0.0160		
31 Syadpur	4.59	8.86	3.70	2.77	20.15	1.15	0.1114	0.2149	0.0898	0.0671	0.4888	0.0280		
32 Sylhet	27.35	71.52	59.65	6.85	65.92	7.08	0.1147	0.3000	0.2503	0.0287	0.2766	0.0297		
33 Tangail	16.03	26.64	17.74	3.98	26.37	5.02	0.1673	0.2781	0.1853	0.0416	0.2753	0.0524		
34 Teknaf	28.37	63.93	76.70	4.08	26.40	8.92	0.1361	0.3068	0.3680	0.0196	0.1267	0.0428		
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	4.6234	6.5952	11.2177	0.6594	10.0586	0.8457		

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B2. Determination of Best Fit Distribution
Chi-square values of Rainfall Data for different probability distributions
February

							Scaling					Appendix B	
							Rank	3	5	4	2	6	1
							Comparison	3.50	6.84	4.78	1.20	24.77	1.00
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	8.10	23.93	8.36	<i>4.11</i>	116.63	<i>2.17</i>	0.0496	0.1465	0.0512	0.0251	0.7142	0.0133	
2 Bhola	27.93	40.83	34.26	<i>3.85</i>	119.41	7.25	0.1196	0.1748	0.1467	0.0165	0.5113	0.0311	
3 Bogra	<i>5.25</i>	23.93	8.51	9.93	84.29	<i>0.70</i>	0.0396	0.1805	0.0641	0.0749	0.6357	0.0052	
4 Chandpur	17.81	50.83	18.35	<i>4.04</i>	107.64	<i>3.65</i>	0.0880	0.2512	0.0907	0.0199	0.5320	0.0180	
5 Chittagong	46.80	52.21	57.58	<i>2.02</i>	312.29	<i>3.83</i>	0.0986	0.1100	0.1213	0.0042	0.6578	0.0081	
6 Chuadanga	<i>4.12</i>	7.75	6.71	6.52	44.81	<i>1.94</i>	0.0573	0.1079	0.0934	0.0907	0.6237	0.0270	
7 Comilla	42.19	53.59	22.58	<i>2.64</i>	114.96	<i>4.85</i>	0.1752	0.2225	0.0938	0.0110	0.4774	0.0202	
8 Cox's Bazar	14.25	27.38	16.74	19.30	168.29	<i>3.59</i>	0.0571	0.1097	0.0671	0.0773	0.6744	0.0144	
9 Dhaka	15.76	11.86	15.14	11.29	131.07	7.10	0.0820	0.0617	0.0788	0.0587	0.6819	0.0370	
10 Dinajpur	8.48	33.59	10.04	<i>2.14</i>	72.16	<i>1.72</i>	0.0662	0.2621	0.0784	0.0167	0.5632	0.0134	
11 Faridpur	<i>5.41</i>	22.55	11.28	7.22	100.18	<i>2.26</i>	0.0364	0.1514	0.0758	0.0485	0.6728	0.0152	
12 Feni	13.86	40.48	20.27	<i>3.02</i>	122.25	<i>3.46</i>	0.0681	0.1991	0.0997	0.0149	0.6012	0.0170	
13 Hatiya	57.02	71.86	152.14	<i>3.76</i>	144.24	14.40	0.1286	0.1621	0.3431	0.0085	0.3253	0.0325	
14 Ishurdi	13.21	24.97	15.80	7.02	177.78	<i>5.31</i>	0.0541	0.1023	0.0647	0.0288	0.7284	0.0217	
15 Jessore	16.80	29.45	17.58	<i>3.27</i>	99.95	<i>4.30</i>	0.0981	0.1719	0.1026	0.0191	0.5833	0.0251	
16 Khepupara	47.08	36.69	40.35	10.82	122.30	9.42	0.1766	0.1376	0.1513	0.0406	0.4586	0.0353	
17 Khulna	<i>1.07</i>	42.55	37.24	<i>4.94</i>	199.71	6.75	0.0036	0.1456	0.1274	0.0169	0.6833	0.0231	
18 Kutubdia	16.85	57.03	33.09	<i>5.93</i>	127.94	<i>5.20</i>	0.0685	0.2318	0.1345	0.0241	0.5200	0.0211	
19 M.Court	7.31	24.62	9.74	<i>1.66</i>	213.47	<i>1.96</i>	0.0283	0.0951	0.0376	0.0064	0.8249	0.0076	
20 Madaripur	<i>4.44</i>	73.24	141.70	<i>5.64</i>	223.82	16.41	0.0095	0.1574	0.3046	0.0121	0.4811	0.0353	
21 Mongla	10.10	21.44	12.38	<i>1.91</i>	64.59	<i>5.06</i>	0.0874	0.1857	0.1072	0.0166	0.5593	0.0438	
22 Mymensingh	21.79	45.66	16.80	<i>2.27</i>	88.37	<i>5.57</i>	0.1207	0.2530	0.0931	0.0126	0.4897	0.0309	
23 Patuakhali	12.60	36.29	18.37	<i>1.04</i>	96.58	<i>4.47</i>	0.0744	0.2143	0.1085	0.0061	0.5703	0.0264	
24 Rajshahi	18.35	23.24	17.58	6.07	64.83	7.80	0.1331	0.1686	0.1275	0.0440	0.4702	0.0566	
25 Rangamati	45.40	48.07	50.89	<i>1.84</i>	151.07	6.67	0.1494	0.1582	0.1674	0.0060	0.4970	0.0219	
26 Rangpur	7.82	34.97	9.71	<i>2.74</i>	219.81	<i>1.21</i>	0.0283	0.1266	0.0351	0.0099	0.7957	0.0044	
27 Sandwip	16.30	47.36	22.45	<i>4.08</i>	122.70	<i>2.91</i>	0.0755	0.2195	0.1040	0.0189	0.5686	0.0135	
28 Satkhira	29.64	38.76	15.31	8.60	139.80	<i>3.40</i>	0.1259	0.1646	0.0650	0.0365	0.5936	0.0144	
29 Shitakunda	14.34	33.24	19.94	13.74	251.54	<i>5.61</i>	0.0424	0.0982	0.0589	0.0406	0.7433	0.0166	
30 Srimangal	11.77	25.57	15.26	6.37	109.68	<i>3.53</i>	0.0684	0.1485	0.0886	0.0370	0.6370	0.0205	
31 Syadpur	13.81	18.86	23.91	<i>0.90</i>	24.61	<i>3.55</i>	0.1613	0.2202	0.2792	0.0105	0.2873	0.0415	
32 Sylhet	18.64	27.03	16.29	10.20	105.91	7.00	0.1007	0.1461	0.0880	0.0551	0.5723	0.0378	
33 Tangail	18.15	<i>2.55</i>	17.79	11.28	371.17	9.76	0.0421	0.0059	0.0413	0.0262	0.8618	0.0227	
34 Teknaf	23.87	50.14	36.10	7.73	86.67	7.46	0.1126	0.2365	0.1703	0.0365	0.4089	0.0352	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	2.8273	5.5271	3.8611	0.9714	20.0055	0.8075	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B3. Determination of Best Fit Distribution
Chi-square values of Rainfall Data for different probability distributions

							Scaling					Appendix B	
							Rank	3	5	4	2	6	1
March							Comparison	4.48	6.74	4.85	1.53	33.53	1.00
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	16.46	45.31	15.82	5.39	187.35	2.76	0.0603	0.1659	0.0579	0.0197	0.6860	0.0101	
2 Bhola	11.16	38.41	14.70	6.44	159.30	3.84	0.0477	0.1643	0.0629	0.0276	0.6812	0.0164	
3 Bogra	14.73	27.72	10.98	2.54	73.00	4.89	0.1100	0.2071	0.0820	0.0190	0.5453	0.0365	
4 Chandpur	164.76	47.38	28.07	8.21	233.48	7.55	0.3366	0.0968	0.0574	0.0168	0.4770	0.0154	
5 Chittagong	5.52	23.93	10.68	9.01	150.62	1.32	0.0275	0.1190	0.0531	0.0448	0.7490	0.0066	
6 Chuadanga	15.88	14.63	16.59	4.92	46.03	6.01	0.1526	0.1406	0.1594	0.0473	0.4424	0.0578	
7 Comilla	12.58	21.86	14.67	9.76	282.19	5.90	0.0362	0.0630	0.0423	0.0281	0.8133	0.0170	
8 Cox's Bazar	30.54	64.67	50.67	0.92	183.14	6.66	0.0907	0.1921	0.1505	0.0027	0.5441	0.0198	
9 Dhaka	5.95	8.76	9.39	2.87	1160.73	2.17	0.0050	0.0074	0.0079	0.0024	0.9755	0.0018	
10 Dinajpur	12.94	45.31	18.27	8.94	75.33	2.14	0.0794	0.2781	0.1122	0.0549	0.4623	0.0132	
11 Faridpur	10.99	29.10	12.14	10.06	154.24	2.44	0.0502	0.1329	0.0554	0.0459	0.7044	0.0111	
12 Feni	15.84	28.07	15.49	5.41	166.28	5.14	0.0670	0.1188	0.0656	0.0229	0.7039	0.0218	
13 Hatiya	25.26	50.83	27.44	2.50	204.47	3.48	0.0805	0.1619	0.0874	0.0079	0.6512	0.0111	
14 Ishurdi	17.38	37.03	22.98	8.10	116.12	9.94	0.0821	0.1751	0.1086	0.0383	0.5489	0.0470	
15 Jessore	10.97	18.76	10.47	14.63	207.05	3.56	0.0413	0.0707	0.0394	0.0551	0.7800	0.0134	
16 Khepupara	349.69	52.36	89.91	11.84	277.09	8.02	0.4433	0.0664	0.1140	0.0150	0.3512	0.0102	
17 Khulna	31.56	43.59	32.40	7.24	161.01	12.73	0.1094	0.1511	0.1123	0.0251	0.5580	0.0441	
18 Kutubdia	126.79	79.79	144.10	3.77	310.65	9.66	0.1879	0.1183	0.2136	0.0056	0.4604	0.0143	
19 M.Court	39.15	41.64	16.97	10.69	209.22	4.61	0.1215	0.1292	0.0526	0.0332	0.6492	0.0143	
20 Madaripur	4.92	17.72	7.03	16.05	162.61	1.00	0.0235	0.0847	0.0336	0.0767	0.7768	0.0048	
21 Mongla	24.54	31.44	25.06	3.32	94.60	11.13	0.1291	0.1654	0.1318	0.0174	0.4977	0.0586	
22 Mymensingh	8.56	12.90	7.52	21.02	346.78	2.85	0.0214	0.0323	0.0188	0.0526	0.8677	0.0071	
23 Patuakhali	18.86	34.50	25.15	8.62	135.45	6.67	0.0823	0.1505	0.1097	0.0376	0.5908	0.0291	
24 Rajshahi	12.05	34.28	15.61	2.78	103.81	4.04	0.0698	0.1986	0.0905	0.0161	0.6015	0.0234	
25 Rangamati	18.13	28.07	15.16	8.53	165.63	5.03	0.0754	0.1167	0.0630	0.0354	0.6885	0.0209	
26 Rangpur	9.98	30.14	11.78	8.74	94.20	3.08	0.0632	0.1909	0.0746	0.0553	0.5965	0.0195	
27 Sandwip	8.62	26.64	12.23	14.02	167.50	2.55	0.0372	0.1151	0.0528	0.0605	0.7234	0.0110	
28 Satkhira	9.25	33.59	9.68	5.17	135.22	2.44	0.0474	0.1719	0.0495	0.0265	0.6922	0.0125	
29 Shitakunda	15.48	19.10	12.75	4.70	715.21	4.66	0.0201	0.0247	0.0165	0.0061	0.9266	0.0060	
30 Srimangal	11.65	31.29	8.75	3.76	202.13	3.13	0.0447	0.1200	0.0336	0.0144	0.7753	0.0120	
31 Syadpur	19.18	30.29	47.59	6.38	77.78	6.32	0.1023	0.1615	0.2538	0.0340	0.4148	0.0337	
32 Sylhet	7.65	23.59	8.53	1.96	446.19	2.06	0.0156	0.0481	0.0174	0.0040	0.9106	0.0042	
33 Tangail	6.15	18.00	7.75	6.13	99.06	1.31	0.0445	0.1300	0.0560	0.0443	0.7157	0.0095	
34 Teknaf	9.67	72.21	296.96	2.04	173.04	10.08	0.0171	0.1280	0.5265	0.0036	0.3068	0.0179	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	2.9228	4.3969	3.1627	0.9970	21.8685	0.6521	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B4. Determination of The Best Fit Distribution
Chi-square values of Rainfall Data for different probability distributions

April							Scaling					Appendix B		
	Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Rank	4	5	3	2	6	1
								Comparison	5.56	7.08	3.63	2.10	162.30	1.00
								Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1	Barisal	20.76	26.69	16.37	8.87	214.26	3.78	0.0714	0.0918	0.0563	0.0305	0.7370	0.0130	
2	Bhola	15.43	29.10	9.52	3.66	225.92	3.10	0.0538	0.1015	0.0332	0.0128	0.7879	0.0108	
3	Bogra	7.58	22.90	7.24	1.18	204.98	2.08	0.0308	0.0931	0.0294	0.0048	0.8334	0.0084	
4	Chandpur	168.95	65.31	26.18	0.61	386.19	7.98	0.2579	0.0997	0.0400	0.0009	0.5894	0.0122	
5	Chittagong	15.70	5.21	17.20	29.80	3425.31	9.18	0.0045	0.0015	0.0049	0.0085	0.9780	0.0026	
6	Chuadanga	3.48	6.50	5.64	8.29	119.23	0.85	0.0242	0.0451	0.0392	0.0576	0.8280	0.0059	
7	Comilla	7.45	17.72	16.07	17.93	2290.22	3.19	0.0032	0.0075	0.0068	0.0076	0.9735	0.0014	
8	Cox's Bazar	6.14	3.07	9.18	12.75	2360.25	2.36	0.0026	0.0013	0.0038	0.0053	0.9860	0.0010	
9	Dhaka	1.99	10.48	20.69	7.73	602.39	1.20	0.0031	0.0163	0.0321	0.0120	0.9347	0.0019	
10	Dinajpur	5.89	8.07	6.62	3.71	4448.92	2.29	0.0013	0.0018	0.0015	0.0008	0.9941	0.0005	
11	Faridpur	14.53	22.21	21.61	11.99	1684.67	3.01	0.0083	0.0126	0.0123	0.0068	0.9583	0.0017	
12	Feni	24.62	11.29	22.04	1.06	1803.92	13.09	0.0131	0.0060	0.0117	0.0006	0.9616	0.0070	
13	Hatiya	11.48	4.62	23.21	14.04	1411.19	8.86	0.0078	0.0031	0.0158	0.0095	0.9578	0.0060	
14	Ishurdi	82.16	41.17	17.78	7.28	215.42	5.35	0.2226	0.1115	0.0482	0.0197	0.5835	0.0145	
15	Jessore	5.92	23.93	7.37	8.02	174.96	0.86	0.0268	0.1083	0.0333	0.0363	0.7915	0.0039	
16	Khepupara	7.54	17.72	16.03	4.97	2521.42	4.52	0.0029	0.0069	0.0062	0.0019	0.9803	0.0018	
17	Khulna	22.72	30.83	10.24	10.83	186.19	3.16	0.0861	0.1168	0.0388	0.0410	0.7054	0.0120	
18	Kutubdia	15.40	31.52	14.22	3.67	178.40	6.39	0.0617	0.1263	0.0570	0.0147	0.7148	0.0256	
19	M.Court	3.82	11.17	9.20	9.17	2525.69	1.79	0.0015	0.0044	0.0036	0.0036	0.9863	0.0007	
20	Madaripur	5.42	13.59	9.14	1.08	3300.44	2.95	0.0016	0.0041	0.0027	0.0003	0.9903	0.0009	
21	Mongla	11.67	4.78	10.11	3.00	3579.30	6.60	0.0032	0.0013	0.0028	0.0008	0.9900	0.0018	
22	Mymensingh	2.46	11.86	9.09	3.41	2131.87	0.68	0.0011	0.0055	0.0042	0.0016	0.9873	0.0003	
23	Patuakhali	14.92	14.86	11.13	13.02	4798.40	7.60	0.0031	0.0031	0.0023	0.0027	0.9873	0.0016	
24	Rajshahi	11.85	30.93	10.02	2.32	145.82	2.53	0.0582	0.1520	0.0492	0.0114	0.7167	0.0124	
25	Rangamati	13.38	17.72	26.77	21.02	3235.47	11.52	0.0040	0.0053	0.0080	0.0063	0.9728	0.0035	
26	Rangpur	3.78	17.72	8.69	14.25	545.20	0.69	0.0064	0.0300	0.0147	0.0241	0.9236	0.0012	
27	Sandwip	3.21	14.86	9.65	7.64	2766.52	1.17	0.0011	0.0053	0.0034	0.0027	0.9870	0.0004	
28	Satkhira	3.98	17.38	9.74	7.81	1886.14	0.72	0.0021	0.0090	0.0051	0.0041	0.9794	0.0004	
29	Shitakunda	6.11	6.00	12.68	10.81	1119.79	1.97	0.0053	0.0052	0.0110	0.0093	0.9675	0.0017	
30	Srimangal	2.95	14.50	10.49	9.00	2069.93	0.95	0.0014	0.0069	0.0050	0.0043	0.9820	0.0005	
31	Syadpur	9.37	18.14	8.05	4.86	110.14	3.53	0.0608	0.1177	0.0522	0.0315	0.7148	0.0229	
32	Sylhet	2.94	4.28	19.90	7.92	1077.48	3.35	0.0026	0.0038	0.0178	0.0071	0.9656	0.0030	
33	Tangail	2.01	6.64	8.54	8.09	1838.42	1.66	0.0011	0.0036	0.0046	0.0043	0.9856	0.0009	
34	Teknaf	3.49	11.52	14.82	4.27	621.85	3.24	0.0053	0.0175	0.0225	0.0065	0.9434	0.0049	
Critical Chi Square Value (95% Confidence Level)		5.99	5.99	7.81	5.99	7.81	5.99	1.0408	1.3258	0.6797	0.3921	30.3744	0.1871	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B5. Determination of Best Fit Distribution
Chi-square values of Rainfall Data for different probability distributions

							Scaling				Appendix B		
May							Rank	3	4	5	2	6	1
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Comparison	4.19	4.80	8.37	2.41	260.81	1.00
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	3.68	1.86	18.59	11.89	1381.83	3.34	0.0026	0.0013	0.0131	0.0084	0.9723	0.0024	
2 Bhola	9.62	28.07	27.85	20.01	1118.78	3.35	0.0080	0.0232	0.0231	0.0166	0.9264	0.0028	
3 Bogra	2.11	7.38	20.91	4.81	1240.48	1.69	0.0017	0.0058	0.0164	0.0038	0.9711	0.0013	
4 Chandpur	5.81	23.24	18.07	3.89	527.63	1.08	0.0100	0.0401	0.0312	0.0067	0.9101	0.0019	
5 Chittagong	3.34	17.00	8.54	16.11	2492.01	0.75	0.0013	0.0067	0.0034	0.0063	0.9820	0.0003	
6 Chuadanga	11.62	9.00	16.04	7.55	1664.90	6.06	0.0068	0.0052	0.0093	0.0044	0.9707	0.0035	
7 Comilla	9.92	4.97	18.61	1.27	1849.28	5.94	0.0052	0.0026	0.0098	0.0007	0.9785	0.0031	
8 Cox's Bazar	1.42	12.21	14.90	7.19	880.92	0.08	0.0015	0.0133	0.0163	0.0078	0.9610	0.0001	
9 Dhaka	6.46	14.28	16.12	7.96	4791.92	3.99	0.0013	0.0029	0.0033	0.0016	0.9899	0.0008	
10 Dinajpur	3.15	13.93	11.58	2.23	5172.13	1.16	0.0006	0.0027	0.0022	0.0004	0.9938	0.0002	
11 Faridpur	3.43	11.17	26.43	3.26	813.93	2.43	0.0040	0.0130	0.0307	0.0038	0.9457	0.0028	
12 Feni	4.17	1.17	17.67	6.80	888.83	6.47	0.0045	0.0013	0.0191	0.0074	0.9608	0.0070	
13 Hatiya	1.83	5.66	12.78	2.59	943.74	0.94	0.0019	0.0058	0.0132	0.0027	0.9754	0.0010	
14 Ishurdi	3.12	7.72	21.08	2.16	1307.08	0.92	0.0023	0.0058	0.0157	0.0016	0.9739	0.0007	
15 Jessore	2.08	8.76	22.18	4.08	1314.66	1.74	0.0015	0.0065	0.0164	0.0030	0.9713	0.0013	
16 Khepupara	3.44	11.86	11.33	1.45	2986.51	1.58	0.0011	0.0039	0.0038	0.0005	0.9902	0.0005	
17 Khulna	1.18	18.76	38.87	18.30	177.34	1.44	0.0046	0.0733	0.1519	0.0715	0.6930	0.0056	
18 Kutubdia	5.79	12.21	16.04	3.08	727.03	2.02	0.0076	0.0159	0.0209	0.0040	0.9489	0.0026	
19 M.Court	7.09	3.24	23.00	9.85	633.33	4.98	0.0104	0.0048	0.0338	0.0144	0.9293	0.0073	
20 Madaripur	2.70	11.52	12.20	9.80	2640.06	0.76	0.0010	0.0043	0.0046	0.0037	0.9862	0.0003	
21 Mongla	0.80	3.11	16.34	3.25	613.74	2.08	0.0013	0.0049	0.0256	0.0051	0.9600	0.0033	
22 Mymensingh	5.86	10.14	18.71	1.51	458.05	2.25	0.0118	0.0204	0.0377	0.0030	0.9225	0.0045	
23 Patuakhali	159.29	39.50	25.30	2.67	276.54	8.36	0.3113	0.0772	0.0495	0.0052	0.5405	0.0163	
24 Rajshahi	5.70	17.03	25.20	1.75	388.52	1.87	0.0129	0.0387	0.0573	0.0040	0.8829	0.0042	
25 Rangamati	10.30	3.07	12.36	16.97	2081.56	7.22	0.0048	0.0014	0.0058	0.0080	0.9766	0.0034	
26 Rangpur	1.86	15.66	39.17	1.69	180.12	0.95	0.0078	0.0654	0.1636	0.0071	0.7522	0.0040	
27 Sandwip	21.41	11.29	24.76	14.62	688.88	12.47	0.0277	0.0146	0.0320	0.0189	0.8907	0.0161	
28 Satkhira	1.49	5.66	22.79	4.16	1175.66	1.46	0.0012	0.0047	0.0188	0.0034	0.9706	0.0012	
29 Shitakunda	4.66	22.90	25.59	6.97	701.27	1.61	0.0061	0.0300	0.0335	0.0091	0.9191	0.0021	
30 Srimangal	2.17	13.79	15.37	1.97	845.68	0.20	0.0025	0.0157	0.0175	0.0022	0.9619	0.0002	
31 Syadpur	4.71	10.29	13.68	5.38	130.19	1.36	0.0285	0.0621	0.0826	0.0325	0.7861	0.0082	
32 Sylhet	8.40	7.38	19.21	3.65	1956.22	4.29	0.0042	0.0037	0.0096	0.0018	0.9785	0.0021	
33 Tangail	3.73	1.18	20.50	10.22	737.45	5.50	0.0048	0.0015	0.0263	0.0131	0.9472	0.0071	
34 Teknaf	3.68	1.86	18.59	11.89	1381.83	3.34	0.0026	0.0013	0.0131	0.0084	0.9723	0.0024	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.5055	0.5801	1.0109	0.2912	31.4916	0.1207	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B6. Determination of Best Fit Distribution
Chi-square values of Rainfall Data for different probability distributions
June

							Scaling					Appendix B	
							Rank	2	4	5	3	6	1
							Comparison	2.02	3.16	6.42	2.29	122.56	1.00
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	9.09	21.86	25.87	1.83	3990.01	5.28	0.0022	0.0054	0.0064	0.0005	0.9842	0.0013	
2 Bhola	5.55	14.97	30.78	2.51	382.53	1.04	0.0127	0.0342	0.0704	0.0057	0.8746	0.0024	
3 Bogra	7.00	12.36	17.56	1.85	2070.96	2.13	0.0033	0.0059	0.0083	0.0009	0.9806	0.0010	
4 Chandpur	276.40	38.41	34.62	44.86	1509.54	9.78	0.1444	0.0201	0.0181	0.0234	0.7888	0.0051	
5 Chittagong	5.87	3.79	15.74	98.93	1134.43	3.82	0.0046	0.0030	0.0125	0.0784	0.8985	0.0030	
6 Chuadanga	1.17	2.13	16.12	6.96	357.88	3.29	0.0030	0.0055	0.0416	0.0180	0.9235	0.0085	
7 Comilla	1.10	19.45	40.05	2.51	340.79	4.03	0.0027	0.0477	0.0982	0.0061	0.8354	0.0099	
8 Cox's Bazar	9.18	13.56	45.18	5.51	262.37	14.63	0.0262	0.0387	0.1289	0.0157	0.7487	0.0418	
9 Dhaka	5.43	8.41	31.84	4.23	1327.46	7.41	0.0039	0.0061	0.0230	0.0031	0.9586	0.0053	
10 Dinajpur	0.25	10.14	30.63	1.12	284.30	2.45	0.0008	0.0308	0.0931	0.0034	0.8644	0.0075	
11 Faridpur	13.96	23.93	27.46	2.46	2686.43	2.99	0.0051	0.0087	0.0100	0.0009	0.9743	0.0011	
12 Feni	1.61	11.86	29.96	2.22	387.53	0.66	0.0037	0.0273	0.0691	0.0051	0.8933	0.0015	
13 Hatiya	15.96	27.03	40.34	0.71	358.39	6.39	0.0356	0.0602	0.0899	0.0016	0.7985	0.0142	
14 Ishurdi	0.30	11.86	31.90	122.16	383.44	2.71	0.0005	0.0215	0.0578	0.2211	0.6942	0.0049	
15 Jessore	7.26	19.45	21.79	0.22	3142.78	2.79	0.0023	0.0061	0.0068	0.0001	0.9839	0.0009	
16 Khepupara	1.20	8.37	22.06	1.66	542.78	1.81	0.0021	0.0145	0.0382	0.0029	0.9393	0.0031	
17 Khulna	12.51	20.83	27.96	4.31	1932.39	5.53	0.0062	0.0104	0.0140	0.0022	0.9645	0.0028	
18 Kutubdia	2.02	7.72	34.77	4.56	378.57	3.25	0.0047	0.0179	0.0807	0.0106	0.8786	0.0075	
19 M.Court	5.34	8.41	35.51	3.70	1673.21	8.44	0.0031	0.0049	0.0205	0.0021	0.9646	0.0049	
20 Madaripur	6.40	8.07	24.54	2.44	1336.64	6.36	0.0046	0.0058	0.0177	0.0018	0.9655	0.0046	
21 Mongla	14.89	20.33	20.22	1.94	150.33	4.08	0.0703	0.0960	0.0955	0.0092	0.7098	0.0192	
22 Mymensingh	3.67	10.48	17.60	2.17	521.44	1.57	0.0066	0.0188	0.0316	0.0039	0.9363	0.0028	
23 Patuakhali	14.53	7.36	21.63	11.95	2991.42	7.64	0.0048	0.0024	0.0071	0.0039	0.9793	0.0025	
24 Rajshahi	5.16	15.21	31.88	15.69	583.06	3.00	0.0079	0.0233	0.0487	0.0240	0.8915	0.0046	
25 Rangamati	8.15	11.64	13.18	5.54	3331.02	3.56	0.0024	0.0035	0.0039	0.0016	0.9875	0.0011	
26 Rangpur	55.27	57.03	59.53	1.96	461.99	9.35	0.0857	0.0884	0.0923	0.0030	0.7161	0.0145	
27 Sandwip	6.13	44.50	19.68	7.30	701.39	18.03	0.0077	0.0558	0.0247	0.0092	0.8800	0.0226	
28 Satkhira	7.98	13.24	17.44	4.55	3170.35	2.81	0.0025	0.0041	0.0054	0.0014	0.9857	0.0009	
29 Shitakunda	0.29	11.86	34.48	22.42	313.43	4.34	0.0007	0.0307	0.0891	0.0580	0.8103	0.0112	
30 Srimangal	2.79	9.86	29.33	2.30	205.67	2.39	0.0110	0.0391	0.1162	0.0091	0.8151	0.0095	
31 Syadpur	9.34	1.71	17.81	5.87	630.68	5.95	0.0139	0.0026	0.0265	0.0087	0.9394	0.0089	
32 Sylhet	4.96	3.24	31.13	3.02	1063.84	1.87	0.0045	0.0029	0.0281	0.0027	0.9601	0.0017	
33 Tangail	6.51	9.24	21.01	3.86	678.35	2.92	0.0090	0.0128	0.0291	0.0053	0.9397	0.0040	
34 Teknaf	0.81	10.93	33.77	9.22	343.93	5.10	0.0020	0.0271	0.0836	0.0228	0.8518	0.0126	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.5008	0.7820	1.5869	0.5664	30.3166	0.2474	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B7. Determination of Best Fit Distribution
Chi-square values of Rainfall Data for different probability distributions
July

							Scaling					Appendix B	
							Rank	1	3	4	2	6	5
							Comparison:	1.00	2.71	6.18	2.09	172.70	6.82
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	0.95	6.69	39.61	4.96	1278.57	2.33	0.0007	0.0050	0.0297	0.0037	0.9591	0.0017	
2 Bhola	4.61	16.69	42.57	6.14	2860.84	0.86	0.0016	0.0057	0.0145	0.0021	0.9758	0.0003	
3 Bogra	1.69	8.07	32.45	6.90	1516.46	3.11	0.0011	0.0051	0.0207	0.0044	0.9667	0.0020	
4 Chandpur	9.87	17.03	31.87	5.38	1279.13	4.02	0.0073	0.0126	0.0237	0.0040	0.9494	0.0030	
5 Chittagong	2.83	3.59	16.02	23.79	824.80	2.83	0.0032	0.0041	0.0183	0.0272	0.9439	0.0032	
6 Chuadanga	5.91	3.38	24.64	4.93	2360.68	5.84	0.0025	0.0014	0.0102	0.0021	0.9814	0.0024	
7 Comilla	4.87	9.45	15.36	3.08	1510.55	1.30	0.0032	0.0061	0.0099	0.0020	0.9780	0.0008	
8 Cox's Bazar	2.66	15.57	39.69	112.92	350.46	10.63	0.0050	0.0293	0.0746	0.2123	0.6589	0.0200	
9 Dhaka	6.34	6.34	24.01	3.41	1038.51	6.65	0.0058	0.0058	0.0221	0.0031	0.9569	0.0061	
10 Dinajpur	5.62	19.79	20.63	12.75	822.34	1.78	0.0064	0.0224	0.0234	0.0144	0.9314	0.0020	
11 Faridpur	5.96	14.97	34.44	1.19	794.36	2.98	0.0070	0.0175	0.0403	0.0014	0.9303	0.0035	
12 Feni	1.04	15.66	40.83	5.31	356.62	9.65	0.0024	0.0365	0.0951	0.0124	0.8311	0.0225	
13 Hatiya	5.64	39.45	79.18	0.97	295.97	34.96	0.0124	0.0865	0.1736	0.0021	0.6488	0.0767	
14 Ishurdi	1.89	12.21	27.56	3.00	1126.12	0.03	0.0016	0.0104	0.0235	0.0026	0.9618	0.0000	
15 Jessore	2.09	12.55	26.41	0.35	2843.55	0.38	0.0007	0.0044	0.0092	0.0001	0.9855	0.0001	
16 Khepupara	3.72	11.29	41.43	1.44	789.94	2.17	0.0044	0.0133	0.0487	0.0017	0.9294	0.0026	
17 Khulna	7.53	10.83	38.73	2.17	3379.84	5.19	0.0022	0.0031	0.0112	0.0006	0.9813	0.0015	
18 Kutubdia	13.08	38.07	40.11	9.55	483.99	5.22	0.0222	0.0645	0.0680	0.0162	0.8203	0.0089	
19 M.Court	8.18	14.97	40.60	4.50	2891.83	2.98	0.0028	0.0051	0.0137	0.0015	0.9760	0.0010	
20 Madaripur	9.19	11.17	39.83	10.43	4867.41	7.92	0.0019	0.0023	0.0081	0.0021	0.9841	0.0016	
21 Mongla	4.85	3.67	27.06	3.20	1575.51	4.66	0.0030	0.0023	0.0167	0.0020	0.9732	0.0029	
22 Mymensingh	3.21	2.90	26.07	4.96	779.38	4.37	0.0039	0.0035	0.0318	0.0060	0.9494	0.0053	
23 Patuakhali	12.65	11.33	49.38	3.58	2181.57	5.61	0.0056	0.0050	0.0218	0.0016	0.9635	0.0025	
24 Rajshahi	13.37	24.97	39.30	5.65	992.03	6.25	0.0124	0.0231	0.0363	0.0052	0.9172	0.0058	
25 Rangamati	9.88	3.93	20.09	9.30	2027.42	5.54	0.0048	0.0019	0.0097	0.0045	0.9765	0.0027	
26 Rangpur	20.46	21.86	23.00	2.84	976.08	3.50	0.0195	0.0209	0.0220	0.0027	0.9316	0.0033	
27 Sandwip	18.09	23.43	24.30	2.24	1453.30	2.85	0.0119	0.0154	0.0159	0.0015	0.9535	0.0019	
28 Satkhira	3.26	4.62	35.84	0.74	996.76	3.87	0.0031	0.0044	0.0343	0.0007	0.9538	0.0037	
29 Shitakunda	1.23	13.43	25.63	3.61	391.56	0.90	0.0028	0.0308	0.0587	0.0083	0.8974	0.0021	
30 Srimangal	5.79	16.64	22.58	1.78	2271.92	3.12	0.0025	0.0072	0.0097	0.0008	0.9785	0.0013	
31 Syadpur	5.11	1.00	7.69	0.91	813.29	3.99	0.0061	0.0012	0.0092	0.0011	0.9775	0.0048	
32 Sylhet	2.72	9.45	31.57	3.46	697.12	0.88	0.0037	0.0127	0.0424	0.0046	0.9355	0.0012	
33 Tangail	2.29	6.18	27.56	9.00	504.52	7.72	0.0041	0.0111	0.0495	0.0161	0.9053	0.0139	
34 Teknaf	16.78	19.86	83.87	18.30	261.34	8008919.7	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1776	0.4805	1.0967	0.3712	30.6629	1.2112	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B8. Determination of Best Fit Distribution
Chi-square values of Rainfall Data for different probability distributions
August

							Scaling					Appendix B	
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Rank	3	4	5	2	6	1
Comparison	1.04	2.96	6.14	1.03	104.82	1.00							
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I							
1 Barisal	3.90	12.55	30.39	3.37	1873.47	2.03		0.0020	0.0065	0.0158	0.0018	0.9729	0.0011
2 Bhola	3.81	15.66	24.32	0.78	4508.12	1.17		0.0008	0.0034	0.0053	0.0002	0.9900	0.0003
3 Bogra	10.99	18.76	31.74	3.52	1825.91	4.51		0.0058	0.0099	0.0167	0.0019	0.9633	0.0024
4 Chandpur	16.31	27.71	25.04	3.23	259.59	2.57		0.0488	0.0829	0.0749	0.0097	0.7762	0.0077
5 Chittagong	11.59	16.69	16.94	6.72	1368.46	5.21		0.0081	0.0117	0.0119	0.0047	0.9599	0.0037
6 Chuadanga	6.54	7.75	32.68	24.22	124.61	21.94		0.0300	0.0356	0.1501	0.1113	0.5723	0.1008
7 Comilla	3.64	5.66	28.13	7.40	634.27	4.82		0.0053	0.0083	0.0411	0.0108	0.9274	0.0070
8 Cox's Bazar	1.38	6.64	22.86	1.42	338.20	4.00		0.0037	0.0177	0.0610	0.0038	0.9031	0.0107
9 Dhaka	5.09	19.10	40.31	1.60	175.21	1.69		0.0209	0.0786	0.1659	0.0066	0.7210	0.0069
10 Dinajpur	4.77	17.72	15.93	2.67	2842.65	0.89		0.0017	0.0061	0.0055	0.0009	0.9854	0.0003
11 Faridpur	5.92	19.79	24.62	0.88	1172.07	1.27		0.0048	0.0162	0.0201	0.0007	0.9571	0.0010
12 Feni	3.85	2.21	19.00	7.81	980.39	3.61		0.0038	0.0022	0.0187	0.0077	0.9641	0.0035
13 Hatiya	4.78	26.00	40.35	8.81	343.17	2.19		0.0112	0.0611	0.0949	0.0207	0.8069	0.0051
14 Ishurdi	7.46	41.86	44.99	7.22	244.21	15.08		0.0207	0.1160	0.1247	0.0200	0.6768	0.0418
15 Jessore	7.80	23.93	25.25	2.83	2238.14	2.27		0.0034	0.0104	0.0110	0.0012	0.9730	0.0010
16 Khepupara	6.60	13.93	30.26	1.28	946.18	2.95		0.0066	0.0139	0.0302	0.0013	0.9451	0.0029
17 Khulna	4.90	21.86	36.06	1.58	262.15	1.47		0.0149	0.0666	0.1099	0.0048	0.7992	0.0045
18 Kutubdia	5.84	22.21	29.29	10.08	818.54	3.89		0.0066	0.0250	0.0329	0.0113	0.9199	0.0044
19 M.Court	4.51	13.93	30.96	0.58	517.47	1.93		0.0079	0.0245	0.0544	0.0010	0.9088	0.0034
20 Madaripur	1.81	11.52	32.00	1.69	584.46	1.42		0.0029	0.0182	0.0506	0.0027	0.9235	0.0022
21 Mongla	1.70	3.67	26.92	1.24	211.05	3.30		0.0069	0.0148	0.1086	0.0050	0.8514	0.0133
22 Mymensingh	7.92	19.10	22.33	0.63	2621.57	2.83		0.0030	0.0071	0.0084	0.0002	0.9803	0.0011
23 Patuakhali	1.40	9.86	24.83	2.68	539.87	1.51		0.0024	0.0170	0.0428	0.0046	0.9306	0.0026
24 Rajshahi	3.75	13.07	27.55	1.56	394.55	0.97		0.0085	0.0296	0.0624	0.0035	0.8938	0.0022
25 Rangamati	6.46	6.29	25.44	3.18	1440.91	4.96		0.0043	0.0042	0.0171	0.0021	0.9688	0.0033
26 Rangpur	8.47	30.14	34.31	6.24	967.28	3.03		0.0081	0.0287	0.0327	0.0059	0.9217	0.0029
27 Sandwip	3.48	6.15	16.75	4.22	1071.12	4.03		0.0031	0.0056	0.0152	0.0038	0.9687	0.0036
28 Satkhira	6.56	10.48	42.99	0.77	293.11	6.66		0.0182	0.0291	0.1192	0.0021	0.8129	0.0185
29 Shitakunda	3.24	13.24	24.50	9.57	523.59	2.93		0.0056	0.0229	0.0425	0.0166	0.9073	0.0051
30 Srimangal	2.54	6.64	34.44	5.28	644.02	7.44		0.0036	0.0095	0.0492	0.0075	0.9195	0.0106
31 Syadpur	8.43	13.14	8.71	9.01	1705.59	3.70		0.0048	0.0075	0.0050	0.0052	0.9754	0.0021
32 Sylhet	4.26	15.66	36.14	0.28	2320.74	0.98		0.0018	0.0066	0.0152	0.0001	0.9759	0.0004
33 Tangail	2.46	12.09	24.17	4.28	248.82	0.79		0.0084	0.0413	0.0826	0.0146	0.8504	0.0027
34 Teknaf	7.54	11.86	47.89	2.19	472.72	6.29		0.0138	0.0216	0.0873	0.0040	0.8618	0.0115
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99		0.3024	0.8604	1.7837	0.2984	30.4643	0.2906

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B9. Determination of Best Fit Distribution
Chi-square values of Rainfall Data for different probability distributions
September

Station	Scaling						Appendix B						
	Rank	4	3	5	2	6	1	Rank	4	3	5	2	6
Comparison	6.15	5.16	7.43	3.12	179.40	1.00	Comparison	6.15	5.16	7.43	3.12	179.40	1.00
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	309.71	42.55	24.84	5.23	291.15	5.75	0.4560	0.0626	0.0366	0.0077	0.4286	0.0085	
2 Bhola	63.81	35.66	19.54	4.01	292.73	4.82	0.1517	0.0848	0.0465	0.0095	0.6960	0.0115	
3 Bogra	5.45	20.48	30.77	1.16	2585.21	2.42	0.0021	0.0077	0.0116	0.0004	0.9772	0.0009	
4 Chandpur	5.80	21.86	19.88	60.95	1077.73	1.83	0.0049	0.0184	0.0167	0.0513	0.9071	0.0015	
5 Chittagong	6.91	4.62	24.45	13.20	313.81	4.92	0.0188	0.0126	0.0665	0.0359	0.8530	0.0134	
6 Chuadanga	4.42	7.33	11.19	8.25	1063.16	3.38	0.0040	0.0067	0.0102	0.0075	0.9685	0.0031	
7 Comilla	6.26	18.41	30.26	2.16	458.71	4.09	0.0120	0.0354	0.0582	0.0042	0.8823	0.0079	
8 Cox's Bazar	2.01	7.71	43.00	2.82	993.11	1.62	0.0019	0.0073	0.0409	0.0027	0.9456	0.0015	
9 Dhaka	5.78	19.10	23.70	7.18	865.16	1.46	0.0063	0.0207	0.0257	0.0078	0.9380	0.0016	
10 Dinajpur	42.38	28.76	21.06	1.31	1651.04	4.54	0.0242	0.0164	0.0120	0.0008	0.9439	0.0026	
11 Faridpur	7.69	20.48	12.05	3.34	3352.15	1.33	0.0023	0.0060	0.0035	0.0010	0.9868	0.0004	
12 Feni	4.40	12.90	27.60	8.45	336.27	2.37	0.0112	0.0329	0.0704	0.0216	0.8579	0.0061	
13 Hatiya	4.97	21.86	28.57	105.92	316.25	1.21	0.0104	0.0457	0.0597	0.2212	0.6605	0.0025	
14 Ishurdi	1.08	5.31	19.97	3.45	820.31	2.93	0.0013	0.0062	0.0234	0.0040	0.9616	0.0034	
15 Jessore	62.01	52.21	29.12	3.17	268.95	6.72	0.1469	0.1237	0.0690	0.0075	0.6371	0.0159	
16 Khepupara	3.48	13.59	29.73	0.61	381.25	0.69	0.0081	0.0316	0.0692	0.0014	0.8880	0.0016	
17 Khulna	10.65	11.52	22.42	1.43	1700.45	6.99	0.0061	0.0066	0.0128	0.0008	0.9698	0.0040	
18 Kutubdia	2.73	7.38	23.73	4.83	427.95	1.55	0.0058	0.0158	0.0507	0.0103	0.9141	0.0033	
19 M.Court	5.30	14.62	14.18	2.06	2347.25	2.96	0.0022	0.0061	0.0059	0.0009	0.9836	0.0012	
20 Madaripur	11.24	28.07	14.18	2.62	562.97	2.42	0.0181	0.0452	0.0228	0.0042	0.9058	0.0039	
21 Mongla	9.09	3.67	18.60	7.12	1346.93	6.75	0.0065	0.0026	0.0134	0.0051	0.9675	0.0048	
22 Mymensingh	7.17	19.10	18.88	1.81	2421.91	1.61	0.0029	0.0077	0.0076	0.0007	0.9803	0.0006	
23 Patuakhali	13.36	12.00	20.23	8.08	3048.23	5.62	0.0043	0.0039	0.0065	0.0026	0.9809	0.0018	
24 Rajshahi	3.77	13.59	30.94	7.19	1329.74	5.60	0.0027	0.0098	0.0222	0.0052	0.9561	0.0040	
25 Rangamati	2.90	9.45	34.83	1.05	408.47	0.94	0.0063	0.0206	0.0761	0.0023	0.8926	0.0021	
26 Rangpur	3.46	11.52	27.00	1.04	743.35	1.58	0.0044	0.0146	0.0343	0.0013	0.9434	0.0020	
27 Sandwip	6.35	39.11	36.31	6.74	1455.97	12.54	0.0041	0.0251	0.0233	0.0043	0.9351	0.0081	
28 Satkhira	6.47	4.62	27.97	1.65	1139.31	3.76	0.0055	0.0039	0.0236	0.0014	0.9624	0.0032	
29 Shitakunda	8.10	8.79	21.26	15.93	725.75	3.78	0.0103	0.0112	0.0271	0.0203	0.9262	0.0048	
30 Srimangal	6.86	3.43	56.79	4.42	1440.28	8.08	0.0045	0.0023	0.0374	0.0029	0.9476	0.0053	
31 Syadpur	4.42	6.71	12.88	3.58	1993.07	0.78	0.0022	0.0033	0.0064	0.0018	0.9860	0.0004	
32 Sylhet	10.56	4.97	18.68	4.26	1232.38	6.02	0.0083	0.0039	0.0146	0.0033	0.9652	0.0047	
33 Tangail	18.34	35.27	19.44	1.70	228.74	4.75	0.0595	0.1144	0.0631	0.0055	0.7421	0.0154	
34 Teknaf	4.51	13.59	47.09	17.48	172.81	4.17	0.0174	0.0523	0.1814	0.0673	0.6656	0.0161	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	1.0331	0.8682	1.2494	0.5249	30.1563	0.1681	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B10. Determination of Best Fit Distribution
Chi-square values of Rainfall Data for different probability distributions
October

Station	Scaling						Appendix B
	Rank						1
	3	5	4	2	6	1	
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Comparison
1 Barisal	8.22	6.00	8.22	18.17	2105.20	<i>4.08</i>	2.27
2 Bhola	7.36	7.38	8.14	8.38	3008.99	<i>4.27</i>	3.84
3 Bogra	10.51	17.03	7.37	<i>4.35</i>	3559.09	<i>3.30</i>	3.03
4 Chandpur	7.65	8.76	12.32	9.03	3099.23	<i>5.50</i>	1.50
5 Chittagong	48.24	31.52	16.07	7.85	451.39	<i>5.90</i>	272.32
6 Chuadanga	<i>4.70</i>	10.00	12.45	<i>1.24</i>	547.45	<i>2.44</i>	1.00
7 Comilla	6.32	9.45	19.76	8.00	1884.00	<i>5.73</i>	
8 Cox's Bazar	<i>5.63</i>	<i>5.78</i>	13.19	11.68	1069.89	<i>3.66</i>	
9 Dhaka	<i>5.51</i>	<i>3.59</i>	11.02	9.42	1829.65	<i>5.04</i>	
10 Dinajpur	19.45	40.48	19.33	9.65	323.52	6.05	
11 Faridpur	10.40	13.24	8.86	3.00	3099.65	<i>4.54</i>	
12 Feni	2.59	11.86	6.70	18.98	2512.34	<i>0.48</i>	
13 Hatiya	3.89	4.97	17.52	13.88	1250.75	<i>5.43</i>	
14 Ishurdi	4.90	55.66	25.11	10.53	324.13	10.03	
15 Jessore	10.93	18.07	11.47	<i>5.96</i>	3285.35	<i>4.38</i>	
16 Khepupara	1.86	8.41	10.24	12.56	1427.76	<i>0.75</i>	
17 Khulna	3.08	11.86	6.45	6.25	3102.51	<i>1.20</i>	
18 Kutubdia	10.11	20.14	23.76	3.23	968.63	<i>5.11</i>	
19 M.Court	19.03	6.69	14.20	8.32	3149.35	11.17	
20 Madaripur	10.02	3.24	10.42	7.84	2343.54	<i>5.74</i>	
21 Mongla	9.62	4.78	18.92	15.28	840.78	9.02	
22 Mymensingh	8.97	3.93	12.05	7.49	1318.26	4.63	
23 Patuakhali	1.16	6.15	11.24	4.52	1302.07	<i>1.99</i>	
24 Rajshahi	3.73	16.34	7.89	4.70	3803.75	<i>0.61</i>	
25 Rangamati	11.34	21.17	12.25	0.26	1995.18	<i>2.58</i>	
26 Rangpur	8.15	15.31	5.84	5.76	3501.63	<i>2.22</i>	
27 Sandwip	15.32	10.59	14.96	2.91	3623.32	7.64	
28 Satkhira	10.26	16.34	10.71	4.42	2723.96	<i>3.38</i>	
29 Shitakunda	10.38	17.36	7.39	<i>1.64</i>	3044.50	3.30	
30 Srimangal	6.32	13.43	20.02	2.36	868.37	<i>2.10</i>	
31 Syadpur	11.58	8.14	8.60	5.72	2395.84	<i>5.45</i>	
32 Sylhet	9.78	10.48	15.15	3.42	1277.36	<i>5.08</i>	
33 Tangail	11.03	20.27	14.32	<i>0.94</i>	2159.61	5.63	
34 Teknaf	5.27	11.52	6.25	3.70	2982.90	<i>3.38</i>	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.2718
							0.4601
							0.3624
							0.1801
							32.6058
							0.1197

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B11. Determination of Best Fit Distribution
Chi-square values of Rainfall Data for different probability distributions
November

							Scaling					Appendix B	
							Rank	3	4	5	1	6	2
							Comparison	3.31	6.30	8.10	1.00	22.05	1.00
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	41.17	52.21	71.02	4.79	206.04	9.79	0.1069	0.1356	0.1845	0.0124	0.5351	0.0254	
2 Bhola	18.86	46.69	37.64	2.71	210.78	2.65	0.0591	0.1462	0.1179	0.0085	0.6601	0.0083	
3 Bogra	71.03	88.07	212.80	2.42	120.91	10.25	0.1405	0.1742	0.4210	0.0048	0.2392	0.0203	
4 Chandpur	17.13	39.10	23.56	3.72	139.16	4.16	0.0755	0.1724	0.1039	0.0164	0.6135	0.0183	
5 Chittagong	24.04	50.14	35.19	4.08	360.78	7.83	0.0499	0.1040	0.0730	0.0085	0.7484	0.0162	
6 Chuadanga	35.85	28.67	40.15	9.61	46.86	15.66	0.2028	0.1621	0.2271	0.0544	0.2651	0.0885	
7 Comilla	11.97	26.00	13.86	22.16	110.38	2.56	0.0640	0.1391	0.0742	0.1185	0.5905	0.0137	
8 Cox's Bazar	13.97	37.36	14.73	3.11	230.58	1.90	0.0463	0.1238	0.0488	0.0103	0.7644	0.0063	
9 Dhaka	16.03	51.86	35.78	8.24	155.68	7.16	0.0584	0.1888	0.1302	0.0300	0.5666	0.0261	
10 Dinajpur	44.30	79.79	225.41	4.74	104.57	7.73	0.0950	0.1710	0.4832	0.0102	0.2241	0.0166	
11 Faridpur	28.80	33.93	33.98	6.49	117.76	11.31	0.1240	0.1461	0.1463	0.0279	0.5070	0.0487	
12 Feni	12.10	40.48	20.78	4.14	167.95	3.01	0.0487	0.1629	0.0836	0.0167	0.6759	0.0121	
13 Hatiya	22.98	50.83	29.00	6.43	196.85	5.48	0.0737	0.1631	0.0931	0.0206	0.6318	0.0176	
14 Ishurdi	29.27	43.93	35.95	6.03	348.38	10.51	0.0617	0.0927	0.0758	0.0127	0.7348	0.0222	
15 Jessore	33.35	59.10	75.44	12.03	139.57	17.86	0.0989	0.1752	0.2236	0.0357	0.4137	0.0529	
16 Khepupara	4.00	72.21	224.17	0.97	366.80	7.89	0.0059	0.1068	0.3316	0.0014	0.5426	0.0117	
17 Khulna	28.83	56.69	62.28	4.34	154.57	9.44	0.0912	0.1793	0.1970	0.0137	0.4889	0.0299	
18 Kutubdia	15.56	44.62	16.29	2.35	181.48	4.97	0.0586	0.1682	0.0614	0.0089	0.6841	0.0187	
19 M.Court	19.49	52.21	32.44	5.00	186.73	5.85	0.0646	0.1730	0.1075	0.0166	0.6189	0.0194	
20 Madaripur	19.71	44.62	30.72	6.09	116.00	9.51	0.0870	0.1969	0.1355	0.0269	0.5118	0.0420	
21 Mongla	30.71	31.44	76.71	9.51	110.85	10.40	0.1139	0.1166	0.2845	0.0353	0.4111	0.0386	
22 Mymensingh	32.85	63.93	107.94	2.59	122.27	11.00	0.0965	0.1877	0.3169	0.0076	0.3590	0.0323	
23 Patuakhali	33.90	48.79	56.95	10.69	191.59	8.99	0.0966	0.1390	0.1623	0.0305	0.5460	0.0256	
24 Rajshahi	18.87	37.72	30.03	6.22	67.86	5.68	0.1134	0.2267	0.1805	0.0374	0.4078	0.0341	
25 Rangamati	9.97	32.90	9.60	2.59	152.92	1.68	0.0476	0.1569	0.0458	0.0123	0.7294	0.0080	
26 Rangpur	3.06	80.48	15625.01	5.59	195.59	19.00	0.0002	0.0051	0.9809	0.0004	0.0123	0.0012	
27 Sandwip	36.14	42.44	25.31	3.67	205.87	4.31	0.1137	0.1336	0.0797	0.0116	0.6479	0.0136	
28 Satkhira	31.65	57.03	69.99	4.28	160.06	10.12	0.0950	0.1712	0.2101	0.0128	0.4805	0.0304	
29 Shitakunda	8.37	29.50	17.23	12.57	178.27	2.37	0.0337	0.1188	0.0694	0.0506	0.7180	0.0095	
30 Srimangal	11.60	42.00	20.05	5.79	139.45	2.97	0.0523	0.1893	0.0904	0.0261	0.6286	0.0134	
31 Syadpur	24.56	38.14	140.19	4.39	50.73	7.38	0.0926	0.1437	0.5282	0.0166	0.1912	0.0278	
32 Sylhet	30.59	39.79	46.62	6.99	113.95	11.42	0.1227	0.1596	0.1870	0.0280	0.4570	0.0458	
33 Tangail	9.50	27.09	16.38	11.08	92.56	2.35	0.0598	0.1704	0.1031	0.0697	0.5823	0.0148	
34 Teknaf	11.64	34.97	11.31	5.65	213.44	1.71	0.0418	0.1255	0.0406	0.0203	0.7658	0.0061	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	2.6923	5.1257	6.5984	0.8142	17.9533	0.8161	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B12. Determination of Best Fit Distribution
 Chi-square values of Rainfall Data for different probability distributions

Station	Scaling						Appendix B					
	Rank						Comparison					
	3	4	6	1	5	2	6.81	8.56	46.61	1.00	13.30	1.36
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Barisal	26.69	56.69	82.98	8.41	46.79	7.57	0.1165	0.2474	0.3622	0.0367	0.2042	0.0330
2 Bhole	20.31	64.28	54.80	9.96	65.82	6.27	0.0917	0.2903	0.2475	0.0450	0.2972	0.0283
3 Bogra	10.32	79.79	4395.37	8.00	182.73	10.16	0.0022	0.0170	0.9379	0.0017	0.0390	0.0022
4 Chandpur	59.31	71.86	234.24	6.16	64.36	14.32	0.1317	0.1596	0.5202	0.0137	0.1429	0.0318
5 Chittagong	29.01	67.71	201.30	6.51	442.99	5.21	0.0385	0.0900	0.2674	0.0086	0.5885	0.0069
6 Chuadanga	246.43	50.67	9848.97	1.78	93.81	14.15	0.0240	0.0049	0.9603	0.0002	0.0091	0.0014
7 Comilla	2.70	80.48	59624.30	9.75	207.63	15.83	0.0000	0.0013	0.9947	0.0002	0.0035	0.0003
8 Cox's Bazar	3.96	72.07	664.54	6.59	170.38	10.91	0.0043	0.0776	0.7158	0.0071	0.1835	0.0117
9 Dhaka	3.50	80.48	3234.43	8.65	180.40	15.00	0.0010	0.0228	0.9182	0.0025	0.0512	0.0043
10 Dinajpur	27.85	58.07	45.05	2.67	469.33	11.96	0.0453	0.0944	0.0733	0.0043	0.7632	0.0195
11 Faridpur	15.00	97.03	4580.80	5.81	179.58	14.22	0.0031	0.0198	0.9363	0.0012	0.0367	0.0029
12 Feni	44.36	58.07	172.87	4.19	81.41	10.06	0.1196	0.1565	0.4660	0.0113	0.2195	0.0271
13 Hatiya	82.55	65.66	403.05	5.19	123.18	14.33	0.1190	0.0946	0.5808	0.0075	0.1775	0.0207
14 Ishurdi	186.20	79.79	2200.54	3.71	132.39	7.50	0.0713	0.0306	0.8431	0.0014	0.0507	0.0029
15 Jessore	8.04	97.03	8823.70	3.73	209.03	12.67	0.0009	0.0106	0.9639	0.0004	0.0228	0.0014
16 Khepupara	26.04	53.79	57.73	8.60	54.35	8.46	0.1246	0.2574	0.2763	0.0411	0.2601	0.0405
17 Khulna	360.42	79.79	1459.42	3.77	154.01	9.16	0.1744	0.0386	0.7062	0.0018	0.0745	0.0044
18 Kutubdia	140.94	72.21	386.58	8.73	115.97	6.47	0.1928	0.0988	0.5289	0.0120	0.1587	0.0089
19 M.Court	26.65	64.28	79.16	5.71	68.20	4.53	0.1072	0.2586	0.3185	0.0230	0.2744	0.0182
20 Madaripur	188.50	79.79	1729.59	5.10	79.11	8.62	0.0902	0.0382	0.8273	0.0024	0.0378	0.0041
21 Mongla	64.94	53.67	3832.11	2.07	40.09	9.12	0.0162	0.0134	0.9575	0.0005	0.0100	0.0023
22 Mymensingh	263.32	88.41	1787.05	2.74	131.51	23.36	0.1147	0.0385	0.7782	0.0012	0.0573	0.0102
23 Patuakhali	25.00	67.71	84.06	2.85	49.24	5.52	0.1067	0.2889	0.3586	0.0122	0.2101	0.0235
24 Rajshahi	87.24	80.14	2209.37	2.02	190.11	16.10	0.0337	0.0310	0.8547	0.0008	0.0735	0.0062
25 Rangamati	351.25	79.79	415.12	5.29	157.38	10.01	0.3448	0.0783	0.4074	0.0052	0.1545	0.0098
26 Rangpur	19.36	53.59	47.92	10.92	63.59	10.56	0.0940	0.2602	0.2327	0.0530	0.3088	0.0513
27 Sandwip	32.68	47.36	81.42	14.74	59.82	8.83	0.1335	0.1934	0.3325	0.0602	0.2443	0.0360
28 Satkhira	5.45	97.03	235895.61	6.48	187.86	16.12	0.0000	0.0004	0.9987	0.0000	0.0008	0.0001
29 Shitakunda	25.80	71.86	117.43	8.44	73.88	8.28	0.0844	0.2351	0.3842	0.0276	0.2417	0.0271
30 Srimangal	4.05	84.50	32514.48	5.50	237.17	13.83	0.0001	0.0026	0.9895	0.0002	0.0072	0.0004
31 Syadpur	34.86	25.29	46.38	3.75	19.68	15.28	0.2400	0.1741	0.3193	0.0258	0.1355	0.1052
32 Sylhet	42.19	58.07	123.98	1.13	95.03	10.01	0.1277	0.1757	0.3752	0.0034	0.2876	0.0303
33 Tangail	48.29	46.18	289.03	6.14	116.91	4.96	0.0944	0.0903	0.5651	0.0120	0.2285	0.0097
34 Teknaf	51.41	61.64	159.20	5.31	103.51	4.69	0.1333	0.1598	0.4127	0.0138	0.2683	0.0122
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	2.9818	3.7510	20.4112	0.4380	5.8234	0.5947

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B13. Determination of Best Fit Distribution
Chi-square values of Rainfall Data for different probability distributions

							Scaling					Appendix B	
Annual							Rank	1	3	4	2	6	5
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Comparison	1.00	4.59	26.91	2.35	161.07	34.33
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	1.95	14.97	106.82	3.76	267.74	1.37	0.0049	0.0377	0.2693	0.0095	0.6751	0.0035	
2 Bhola	6.20	3.24	86.11	2.50	1001.74	7.04	0.0056	0.0029	0.0778	0.0023	0.9051	0.0064	
3 Bogra	1.49	7.36	48.22	0.94	902.32	3.70	0.0015	0.0076	0.0500	0.0010	0.9360	0.0038	
4 Chandpur	7.27	16.69	49.60	4.19	659.08	2.59	0.0098	0.0226	0.0671	0.0057	0.8913	0.0035	
5 Chittagong	11.30	18.41	104.56	9.65	1138.16	3.95	0.0088	0.0143	0.0813	0.0075	0.8850	0.0031	
6 Chuadanga	1.31	7.13	54.55	6.89	128.58	9.10	0.0063	0.0343	0.2628	0.0332	0.6195	0.0438	
7 Comilla	2.52	17.03	97.98	6.35	293.07	41.11	0.0055	0.0372	0.2139	0.0139	0.6398	0.0897	
8 Cox's Bazar	19.57	22.21	93.74	74.71	452.08	39097.77	0.0005	0.0006	0.0024	0.0019	0.0114	0.9833	
9 Dhaka	1.58	20.48	81.45	0.72	1919.11	0.47	0.0008	0.0101	0.0402	0.0004	0.9483	0.0002	
10 Dinajpur	1.25	7.38	62.63	3.63	404.60	5.83	0.0026	0.0152	0.1290	0.0075	0.8337	0.0120	
11 Faridpur	3.08	23.24	103.15	3.71	388.77	6.19	0.0058	0.0440	0.1953	0.0070	0.7361	0.0117	
12 Feni	2.54	3.59	53.64	4.39	546.02	9.69	0.0041	0.0058	0.0865	0.0071	0.8809	0.0156	
13 Hatiya	30.79	28.07	90.05	148.33	443.53	4.55E+11	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
14 Ishurdi	4.17	14.28	84.15	1.03	1620.67	5.80	0.0024	0.0083	0.0486	0.0006	0.9368	0.0033	
15 Jessore	0.84	11.52	73.36	2.60	526.00	3.40	0.0014	0.0186	0.1188	0.0042	0.8515	0.0055	
16 Khepupara	1.94	13.59	93.72	3.35	272.35	11.37	0.0049	0.0343	0.2365	0.0085	0.6872	0.0287	
17 Khulna	1.18	10.83	81.71	4.12	556.01	8.38	0.0018	0.0164	0.1234	0.0062	0.8396	0.0127	
18 Kutubdia	10.33	38.41	84.32	123.92	1110.13	217462.90	0.0000	0.0002	0.0004	0.0006	0.0051	0.9938	
19 M.Court	3.54	22.90	113.44	7.71	402.19	2.01	0.0064	0.0415	0.2056	0.0140	0.7289	0.0036	
20 Madaripur	2.04	11.52	91.48	5.49	287.62	45.37	0.0046	0.0260	0.2063	0.0124	0.6485	0.1023	
21 Mongla	0.91	8.67	46.85	2.52	901.39	1.78	0.0009	0.0090	0.0487	0.0026	0.9369	0.0018	
22 Mymensingh	6.28	4.62	68.71	2.90	726.03	4.54	0.0077	0.0057	0.0845	0.0036	0.8929	0.0056	
23 Patuakhali	4.82	21.29	89.89	6.98	413.24	3.47	0.0089	0.0394	0.1666	0.0129	0.7657	0.0064	
24 Rajshahi	2.80	25.54	81.65	2.22	254.18	42.95	0.0068	0.0624	0.1995	0.0054	0.6210	0.1049	
25 Rangamati	2.16	13.24	63.88	5.89	340.65	4.97	0.0050	0.0307	0.1483	0.0137	0.7908	0.0115	
26 Rangpur	3.41	16.34	61.79	2.22	3708.80	0.87	0.0009	0.0043	0.0163	0.0006	0.9777	0.0002	
27 Sandwip	8.58	26.64	86.18	1.16	1318.77	2.93	0.0059	0.0184	0.0597	0.0008	0.9131	0.0020	
28 Satkhira	2.10	21.17	143.70	4.33	148.01	3.06	0.0065	0.0657	0.4458	0.0134	0.4591	0.0095	
29 Shitakunda	2.10	19.79	73.76	58.21	393.41	416.23	0.0022	0.0205	0.0766	0.0604	0.4083	0.4320	
30 Srimangal	5.73	15.57	78.86	32.18	292.72	77.22	0.0114	0.0310	0.1570	0.0641	0.5828	0.1537	
31 Syadpur	2.21	1.00	18.27	6.38	273.16	2.76	0.0073	0.0033	0.0602	0.0210	0.8992	0.0091	
32 Sylhet	9.07	11.52	107.72	6.57	1716.34	8.14	0.0049	0.0062	0.0579	0.0035	0.9231	0.0044	
33 Tangail	2.51	7.09	69.60	2.22	1755.80	2.84	0.0014	0.0039	0.0378	0.0012	0.9542	0.0015	
34 Teknaf	14.63	28.07	113.75	96.94	390.52	1.56E+08	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1477	0.6781	3.9740	0.3463	23.7844	5.0694	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B14. Determination of Best Fit Distribution
Chi-square values of Rainfall Data for different probability distributions
Yearly Maximum Monthly

							Scaling					Appendix B	
							Rank	2	3	4	1	6	5
							Comparison	1.03	2.07	5.73	1.00	79.64	7.45
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	17.11	27.03	71.23	4.89	1405.79	7.41	0.0112	0.0176	0.0464	0.0032	0.9167	0.0048	
2 Bhoja	5.89	12.90	49.64	7.37	845.54	1.64	0.0064	0.0140	0.0538	0.0080	0.9161	0.0018	
3 Bogra	6.66	14.28	52.02	1.89	1345.05	3.31	0.0047	0.0100	0.0365	0.0013	0.9451	0.0023	
4 Chandpur	34.66	40.48	45.69	4.74	270.08	6.86	0.0861	0.1006	0.1135	0.0118	0.6710	0.0171	
5 Chittagong	2.77	9.45	53.57	3.30	2323.93	1.11	0.0012	0.0039	0.0224	0.0014	0.9707	0.0005	
6 Chuadanga	7.78	12.13	32.54	5.52	243.35	2.93	0.0256	0.0399	0.1069	0.0181	0.7999	0.0096	
7 Comilla	3.45	9.79	50.11	1.11	1223.33	1.79	0.0027	0.0076	0.0389	0.0009	0.9486	0.0014	
8 Cox's Bazar	4.81	26.00	70.63	11.16	340.21	285.41	0.0065	0.0352	0.0957	0.0151	0.4609	0.3866	
9 Dhaka	1.85	8.07	50.61	4.22	927.43	3.24	0.0019	0.0081	0.0508	0.0042	0.9317	0.0033	
10 Dinajpur	8.84	18.07	43.37	0.67	972.73	3.29	0.0084	0.0173	0.0414	0.0006	0.9291	0.0031	
11 Faridpur	11.07	10.14	41.26	4.42	2598.52	5.21	0.0041	0.0038	0.0155	0.0017	0.9730	0.0020	
12 Feni	1.69	12.90	68.77	1.40	463.69	9.35	0.0030	0.0231	0.1233	0.0025	0.8313	0.0168	
13 Hatiya	11.28	36.00	77.22	8.37	272.96	2298.04	0.0042	0.0133	0.0286	0.0031	0.1010	0.8499	
14 Ishurdi	4.33	5.31	38.98	1.29	1354.35	3.60	0.0031	0.0038	0.0277	0.0009	0.9620	0.0026	
15 Jessore	6.90	14.28	35.33	7.78	1371.33	2.19	0.0048	0.0099	0.0246	0.0054	0.9538	0.0015	
16 Khepupara	6.13	3.24	69.78	2.75	529.69	3.35	0.0100	0.0053	0.1135	0.0045	0.8614	0.0054	
17 Khulna	13.20	20.14	58.52	0.62	596.88	8.23	0.0189	0.0289	0.0839	0.0009	0.8556	0.0118	
18 Kutubdia	9.10	25.15	32.36	45.32	332.70	1.10	0.0204	0.0564	0.0726	0.1017	0.7464	0.0025	
19 M.Court	6.51	12.21	52.41	7.71	1710.06	2.77	0.0036	0.0068	0.0293	0.0043	0.9544	0.0015	
20 Madaripur	3.13	20.48	62.29	1.98	555.79	4.52	0.0048	0.0316	0.0961	0.0031	0.8574	0.0070	
21 Mongla	8.66	14.78	39.31	2.32	124.46	3.29	0.0449	0.0766	0.2039	0.0120	0.6455	0.0170	
22 Mymensingh	5.31	1.86	36.96	3.98	4055.17	5.21	0.0013	0.0005	0.0090	0.0010	0.9870	0.0013	
23 Patuakhali	3.75	3.43	52.13	4.83	2036.06	7.01	0.0018	0.0016	0.0247	0.0023	0.9662	0.0033	
24 Rajshahi	4.02	8.41	33.24	4.02	2006.68	2.30	0.0020	0.0041	0.0161	0.0020	0.9747	0.0011	
25 Rangamati	7.26	2.55	37.42	4.69	852.59	6.57	0.0080	0.0028	0.0411	0.0052	0.9358	0.0072	
26 Rangpur	14.61	23.59	55.39	6.83	293.83	4.85	0.0366	0.0591	0.1388	0.0171	0.7362	0.0121	
27 Sandwip	5.03	43.79	35.47	2.76	457.09	8.14	0.0091	0.0793	0.0642	0.0050	0.8277	0.0147	
28 Satkhira	1.91	8.76	61.18	3.62	1087.12	1.94	0.0016	0.0075	0.0525	0.0031	0.9335	0.0017	
29 Shitakunda	2.03	18.76	49.37	46.15	297.98	102.36	0.0039	0.0363	0.0956	0.0893	0.5768	0.1981	
30 Srimangal	4.45	17.00	42.02	0.98	2258.38	0.87	0.0019	0.0073	0.0181	0.0004	0.9719	0.0004	
31 Syadpur	3.74	1.00	22.18	5.47	311.39	6.44	0.0107	0.0029	0.0633	0.0156	0.8891	0.0184	
32 Sylhet	4.13	1.17	60.13	4.80	1166.37	6.08	0.0033	0.0009	0.0484	0.0039	0.9386	0.0049	
33 Tangail	13.86	20.27	28.22	3.02	2190.20	3.77	0.0061	0.0090	0.0125	0.0013	0.9694	0.0017	
34 Teknaf	20.45	35.66	99.40	25.03	294.33	2.12E+09	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.3628	0.7250	2.0095	0.3508	27.9385	2.6134	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B15. Determination of Best Fit Distribution
Chi-square values of Rainfall Data for different probability distributions
Yearly Average Daily

							Scaling					Appendix B	
							Rank	1	3	5	2	6	4
							Comparison	1.00	3.49	20.02	1.44	36.81	16.63
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	2.46	10.83	90.29	2.39	251.88	6.03	0.0068	0.0298	0.2481	0.0066	0.6922	0.0166	
2 Bhola	4.28	2.55	79.16	0.97	680.22	5.66	0.0055	0.0033	0.1024	0.0013	0.8802	0.0073	
3 Bogra	4.02	26.69	67.62	2.14	115.05	766.96	0.0041	0.0272	0.0688	0.0022	0.1171	0.7806	
4 Chandpur	15.84	21.86	63.66	2.84	109.80	5.52	0.0721	0.0996	0.2900	0.0129	0.5002	0.0252	
5 Chittagong	9.65	28.76	110.89	11.26	76.20	1.82	0.0404	0.1205	0.4648	0.0472	0.3194	0.0076	
6 Chuadanga	4.57	8.38	66.21	6.83	187.87	25.17	0.0153	0.0280	0.2214	0.0228	0.6283	0.0842	
7 Comilla	1.51	17.72	97.60	6.19	170.58	4.89	0.0051	0.0594	0.3270	0.0207	0.5715	0.0164	
8 Cox's Bazar	18.97	20.14	95.74	101.04	282.19	19316.39	0.0010	0.0010	0.0048	0.0051	0.0142	0.9739	
9 Dhaka	3.52	26.00	78.80	0.57	123.76	229.58	0.0076	0.0562	0.1705	0.0012	0.2677	0.4967	
10 Dinajpur	1.60	10.48	68.06	5.22	721.45	3.87	0.0020	0.0129	0.0839	0.0064	0.8899	0.0048	
11 Faridpur	7.18	20.83	111.27	17.07	86.84	13.09	0.0280	0.0813	0.4342	0.0666	0.3389	0.0511	
12 Feni	0.79	13.93	67.75	4.98	275.98	9.81	0.0021	0.0373	0.1815	0.0133	0.7394	0.0263	
13 Hatiya	23.94	37.03	104.31	144.53	132.43	2.12E+10	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
14 Ishurdi	1.63	5.66	73.70	1.42	38.81	1.88	0.0132	0.0459	0.5987	0.0115	0.3153	0.0153	
15 Jessore	0.98	7.38	77.08	1.32	80.51	4.94	0.0057	0.0428	0.4476	0.0077	0.4675	0.0287	
16 Khepupara	4.75	7.38	109.80	1.64	122.96	3.31	0.0190	0.0295	0.4395	0.0066	0.4922	0.0132	
17 Khulna	3.53	22.21	79.02	4.44	60.29	1.56	0.0207	0.1298	0.4620	0.0260	0.3525	0.0091	
18 Kutubdia	10.61	33.24	75.77	130.11	134.71	710987.83	0.0000	0.0000	0.0001	0.0002	0.0002	0.9995	
19 M.Court	4.85	23.59	115.62	2.02	103.10	2.67	0.0192	0.0937	0.4591	0.0080	0.4094	0.0106	
20 Madaripur	1.55	14.97	101.57	0.00	224.85	10.58	0.0044	0.0423	0.2873	0.0000	0.6360	0.0299	
21 Mongla	3.60	13.11	65.55	1.01	24.65	0.91	0.0331	0.1205	0.6024	0.0092	0.2265	0.0084	
22 Mymensingh	6.59	9.10	71.27	7.30	1014.22	16.39	0.0059	0.0081	0.0634	0.0065	0.9016	0.0146	
23 Patuakhali	9.39	50.83	95.06	5.72	142.86	2071.33	0.0040	0.0214	0.0400	0.0024	0.0601	0.8721	
24 Rajshahi	8.28	16.34	54.43	1.48	491.76	26.05	0.0138	0.0273	0.0910	0.0025	0.8219	0.0435	
25 Rangamati	1.04	9.45	56.32	3.11	960.00	7.03	0.0010	0.0091	0.0543	0.0030	0.9258	0.0068	
26 Rangpur	2.62	19.79	70.63	0.96	274.27	0.76	0.0071	0.0536	0.1914	0.0026	0.7432	0.0021	
27 Sandwip	4.70	32.90	72.33	1.43	203.35	202.52	0.0091	0.0636	0.1398	0.0028	0.3931	0.3915	
28 Salkhira	2.12	6.69	149.37	4.30	7.37	3.19	0.0123	0.0387	0.8632	0.0249	0.0426	0.0184	
29 Shitakunda	4.01	26.00	76.42	95.68	429.08	55.92	0.0058	0.0378	0.1112	0.1392	0.6245	0.0814	
30 Srimangal	4.20	12.00	74.67	57.05	344.19	25.48	0.0081	0.0232	0.1443	0.1102	0.6650	0.0492	
31 Syadpur	3.24	1.00	20.40	6.06	764.00	3.05	0.0041	0.0013	0.0256	0.0076	0.9577	0.0038	
32 Sylhet	9.07	11.52	107.72	0.95	139.97	8.14	0.0327	0.0415	0.3884	0.0034	0.5046	0.0293	
33 Tangail	2.51	13.91	74.61	4.76	34.77	0.76	0.0191	0.1059	0.5681	0.0363	0.2648	0.0058	
34 Teknaf	6.92	22.90	118.05	147.86	120.46	227812.96	0.0000	0.0001	0.0005	0.0006	0.0005	0.9982	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.4283	1.4928	8.5753	0.6177	15.7640	7.1219	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B16. Determination of Best Fit Distribution
Chi-square values of Rainfall Data for different probability distributions
Yearly Average Daily

							Scaling					Appendix B	
							Rank	1	3	5	2	6	4
							Comparison	1.00	2.70	18.53	1.29	23.45	10.98
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	2.46	10.83	90.29	2.39	251.88	6.03	0.0068	0.0298	0.2481	0.0066	0.6922	0.0166	
2 Bhola	778.60	116.00	1.09E+10	0.64	348.67	0.00	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	
3 Bogra	4.63	21.86	68.15	0.78	20.71	3134.64	0.0014	0.0067	0.0210	0.0002	0.0064	0.9643	
4 Chandpur	7.61	15.66	62.95	1.31	27.15	2.78	0.0648	0.1333	0.5360	0.0111	0.2311	0.0237	
5 Chittagong	9.65	28.76	110.89	11.26	76.20	1.82	0.0404	0.1205	0.4648	0.0472	0.3194	0.0076	
6 Chuadanga	4.57	8.38	66.21	6.82	187.87	25.13	0.0153	0.0280	0.2215	0.0228	0.6284	0.0840	
7 Comilla	5.75	16.00	107.70	7.76	85.97	34.15	0.0223	0.0622	0.4185	0.0301	0.3341	0.1327	
8 Cox's Bazar	18.97	20.14	95.74	101.04	282.19	19316.39	0.0010	0.0010	0.0048	0.0051	0.0142	0.9739	
9 Dhaka	3.52	26.00	78.80	0.57	123.76	229.58	0.0076	0.0562	0.1705	0.0012	0.2677	0.4967	
10 Dinajpur	2.44	13.59	81.85	4.10	55.87	2.87	0.0152	0.0845	0.5093	0.0255	0.3476	0.0179	
11 Faridpur	5.31	6.34	79.93	17.07	136.18	8.86	0.0209	0.0250	0.3151	0.0673	0.5368	0.0349	
12 Feni	0.79	13.93	67.75	4.98	275.98	9.81	0.0021	0.0373	0.1815	0.0133	0.7394	0.0263	
13 Hatiya	23.94	37.03	104.31	144.53	132.43	2.12E+10	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
14 Ishurdi	1.63	5.66	73.70	1.42	38.81	1.88	0.0132	0.0459	0.5987	0.0115	0.3153	0.0153	
15 Jessore	1.62	6.34	77.48	0.40	79.63	5.75	0.0095	0.0371	0.4525	0.0023	0.4651	0.0336	
16 Khepupara	4.75	7.38	109.80	1.64	122.96	3.31	0.0190	0.0295	0.4395	0.0066	0.4922	0.0132	
17 Khulna	3.03	11.17	75.96	4.44	160.26	8.73	0.0115	0.0424	0.2882	0.0169	0.6080	0.0331	
18 Kutubdia	10.61	33.24	75.77	130.11	134.71	710987.83	0.0000	0.0000	0.0001	0.0002	0.0002	0.9995	
19 M.Court	4.85	23.59	115.62	2.02	103.10	2.67	0.0192	0.0937	0.4591	0.0080	0.4094	0.0106	
20 Madaripur	2.55	14.28	109.52	11.92	98.44	13.31	0.0102	0.0571	0.4381	0.0477	0.3938	0.0532	
21 Mongla	3.60	13.11	65.55	1.01	24.65	0.91	0.0331	0.1205	0.6024	0.0092	0.2265	0.0084	
22 Mymensingh	2.02	6.00	61.98	5.75	36.51	1.38	0.0178	0.0528	0.5454	0.0506	0.3213	0.0122	
23 Patuakhali	34.95	39.14	132.41	5.60	54.27	7.59	0.1276	0.1429	0.4833	0.0205	0.1981	0.0277	
24 Rajshahi	8.28	16.34	54.43	1.48	491.76	26.05	0.0138	0.0273	0.0910	0.0025	0.8219	0.0435	
25 Rangamati	1.04	9.45	56.32	3.11	960.00	7.03	0.0010	0.0091	0.0543	0.0030	0.9258	0.0068	
26 Rangpur	2.62	19.79	70.63	0.96	274.27	0.76	0.0071	0.0536	0.1914	0.0026	0.7432	0.0021	
27 Sandwip	9.95	28.43	82.84	1.20	427.88	2.97	0.0180	0.0514	0.1497	0.0022	0.7734	0.0054	
28 Satkhira	1.87	6.69	146.87	2.44	286.48	3.29	0.0042	0.0149	0.3281	0.0054	0.6400	0.0074	
29 Shitakunda	4.01	26.00	76.42	95.68	429.08	55.92	0.0058	0.0378	0.1112	0.1392	0.6245	0.0814	
30 Srimangal	2.41	14.50	69.46	23.18	26.64	47.04	0.0132	0.0791	0.3791	0.1265	0.1454	0.2567	
31 Syadpur	3.24	1.00	20.40	6.06	764.00	3.05	0.0041	0.0013	0.0256	0.0076	0.9577	0.0038	
32 Sylhet	5.37	6.69	110.28	7.41	39.83	5.79	0.0306	0.0381	0.6289	0.0422	0.2271	0.0330	
33 Tangail	3.39	7.09	57.86	1.85	40.13	4.30	0.0295	0.0619	0.5048	0.0162	0.3501	0.0375	
34 Teknaf	4.99	22.90	99.78	84.76	14.55	10265.37	0.0005	0.0022	0.0095	0.0081	0.0014	0.9784	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.5867	1.5833	10.8718	0.7595	13.7575	6.4412	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B17. Determination of Best Fit Distribution
Chi-square values of Rainfall Data for different probability distributions
Yearly Maximum Daily

Station	Scaling						Appendix B					
	Rank	4	3	5	1	6	2	1	6	2		
	Comparison	2.73	2.54	4.87	1.00	34.66	1.08	Normal	Uniform	Exponential	Log-Normal	Poisson
1 Barisal	<i>2.71</i>	10.80	28.16	<i>1.94</i>	838.88	<i>1.62</i>	0.0031	0.0122	0.0319	0.0022	0.9488	0.0018
2 Bhola	<i>2.05</i>	13.20	43.68	<i>3.89</i>	132.29	<i>0.73</i>	0.0105	0.0674	0.2230	0.0199	0.6755	0.0037
3 Bogra	9.24	16.40	33.13	11.07	226.23	9.10	0.0303	0.0537	0.1086	0.0363	0.7413	0.0298
4 Chandpur	12.56	8.50	15.10	<i>3.87</i>	3608.90	6.80	0.0034	0.0023	0.0041	0.0011	0.9872	0.0019
5 Chittagong	12.90	17.20	25.68	<i>1.21</i>	436.35	<i>2.16</i>	0.0260	0.0347	0.0518	0.0024	0.8806	0.0044
6 Chuadanga	6.82	9.63	18.05	<i>1.17</i>	73.28	<i>2.67</i>	0.0611	0.0862	0.1617	0.0105	0.6565	0.0239
7 Comilla	67.13	22.00	20.58	11.16	140.05	<i>5.14</i>	0.2523	0.0827	0.0774	0.0419	0.5264	0.0193
8 Cox's Bazar	<i>2.44</i>	23.60	72.72	13.18	115.68	46.56	0.0089	0.0861	0.2652	0.0481	0.4219	0.1698
9 Dhaka	41.91	29.20	38.61	8.42	98.69	6.76	0.1875	0.1306	0.1727	0.0376	0.4414	0.0302
10 Dinajpur	25.13	19.75	13.40	<i>4.27</i>	376.43	<i>4.70</i>	0.0566	0.0445	0.0302	0.0096	0.8484	0.0106
11 Faridpur	42.84	23.50	19.35	7.47	116.49	<i>4.64</i>	0.1999	0.1097	0.0903	0.0349	0.5436	0.0216
12 Feni	<i>4.01</i>	16.00	48.11	<i>2.10</i>	283.69	15.04	0.0109	0.0434	0.1304	0.0057	0.7689	0.0408
13 Hatiya	14.26	14.50	28.80	<i>1.87</i>	128.91	<i>3.13</i>	0.0745	0.0757	0.1504	0.0098	0.6733	0.0163
14 Ishurdi	<i>3.82</i>	<i>4.00</i>	86.98	<i>3.67</i>	25.43	<i>2.59</i>	0.0302	0.0316	0.6876	0.0290	0.2010	0.0205
15 Jessore	13.92	11.20	22.29	<i>5.25</i>	693.30	6.86	0.0185	0.0149	0.0296	0.0070	0.9209	0.0091
16 Khepupara	<i>5.82</i>	14.00	22.71	<i>4.13</i>	2484.52	<i>4.10</i>	0.0023	0.0055	0.0090	0.0016	0.9800	0.0016
17 Khulna	40.38	44.00	28.62	<i>2.41</i>	133.99	6.91	0.1576	0.1717	0.1116	0.0094	0.5228	0.0269
18 Kutubdia	9.61	23.52	32.60	10.57	138.39	<i>3.04</i>	0.0441	0.1080	0.1497	0.0485	0.6356	0.0140
19 M.Court	11.15	22.80	26.64	<i>2.94</i>	1338.67	<i>4.81</i>	0.0079	0.0162	0.0189	0.0021	0.9514	0.0034
20 Madaripur	<i>3.55</i>	12.40	27.10	<i>2.56</i>	337.77	<i>0.71</i>	0.0093	0.0323	0.0706	0.0067	0.8794	0.0019
21 Mongla	<i>0.95</i>	<i>3.86</i>	17.05	<i>2.61</i>	495.83	<i>0.95</i>	0.0018	0.0074	0.0327	0.0050	0.9512	0.0018
22 Mymensingh	8.18	65.20	33.92	34.22	238.67	15.59	0.0207	0.1647	0.0857	0.0865	0.6030	0.0394
23 Patuakhali	<i>1.76</i>	9.75	25.71	<i>4.27</i>	492.17	<i>1.44</i>	0.0033	0.0182	0.0481	0.0080	0.9198	0.0027
24 Rajshahi	<i>5.73</i>	12.80	21.02	<i>4.94</i>	185.92	<i>2.86</i>	0.0245	0.0549	0.0901	0.0212	0.7970	0.0123
25 Rangamati	7.33	<i>4.80</i>	24.16	<i>3.79</i>	834.92	<i>5.17</i>	0.0083	0.0055	0.0274	0.0043	0.9486	0.0059
26 Rangpur	342.69	33.20	26.03	<i>5.58</i>	201.80	9.25	0.5540	0.0537	0.0421	0.0090	0.3262	0.0150
27 Sandwip	12.36	28.40	27.15	<i>4.11</i>	139.12	<i>2.67</i>	0.0578	0.1328	0.1270	0.0192	0.6507	0.0125
28 Satkhira	8.71	17.60	20.42	<i>5.64</i>	225.16	<i>1.45</i>	0.0312	0.0631	0.0732	0.0202	0.8071	0.0052
29 Shitakunda	<i>1.16</i>	11.60	33.52	18.90	131.87	37.37	0.0049	0.0495	0.1430	0.0806	0.5625	0.1594
30 Srimangal	11.21	14.80	27.14	<i>1.09</i>	784.99	<i>5.11</i>	0.0133	0.0175	0.0321	0.0013	0.9297	0.0060
31 Syadpur	<i>2.29</i>	<i>2.43</i>	15.11	<i>2.51</i>	152.26	<i>0.95</i>	0.0130	0.0138	0.0861	0.0143	0.8673	0.0054
32 Sylhet	<i>2.13</i>	8.80	34.21	<i>3.62</i>	1808.79	<i>2.40</i>	0.0011	0.0047	0.0184	0.0019	0.9725	0.0013
33 Tangail	12.19	9.22	19.64	<i>4.07</i>	201.49	6.24	0.0482	0.0365	0.0777	0.0161	0.7969	0.0247
34 Teknaf	<i>0.64</i>	7.20	43.42	42.57	463.48	24.31	0.0011	0.0124	0.0747	0.0732	0.7969	0.0418
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	1.9783	1.8442	3.5330	0.7251	25.1345	0.7849

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B18. Determination of Best Fit Distribution
Chi-square values of Rainfall Data for different probability distributions
Total Pre-Monsoon(March-June)

							Scaling					Appendix B	
							Rank	3	4	5	2	6	1
							Comparison	1.72	3.06	7.05	1.31	137.25	1.00
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	12.22	11.86	20.41	2.49	1589.21	5.51	0.0074	0.0072	0.0124	0.0015	0.9680	0.0034	
2 Bholā	5.12	19.79	26.10	10.54	519.14	2.17	0.0088	0.0340	0.0448	0.0181	0.8907	0.0037	
3 Bogra	1.09	6.69	29.04	9.82	881.90	2.52	0.0012	0.0072	0.0312	0.0105	0.9472	0.0027	
4 Chandpur	31.91	30.48	28.90	3.85	2190.71	11.61	0.0139	0.0133	0.0126	0.0017	0.9535	0.0051	
5 Chittagong	4.22	4.28	12.05	28.01	1356.88	2.75	0.0030	0.0030	0.0086	0.0199	0.9636	0.0020	
6 Chuadanga	11.79	4.63	17.20	3.24	1121.46	6.47	0.0101	0.0040	0.0148	0.0028	0.9628	0.0056	
7 Comilla	4.32	6.00	29.05	1.50	302.82	6.25	0.0123	0.0171	0.0830	0.0043	0.8654	0.0179	
8 Cox's Bazar	2.38	12.21	19.12	5.51	1137.64	0.63	0.0020	0.0104	0.0162	0.0047	0.9662	0.0005	
9 Dhaka	13.63	10.83	40.73	7.63	575.31	7.44	0.0208	0.0165	0.0621	0.0116	0.8776	0.0114	
10 Dinajpur	6.86	18.41	28.29	3.04	1303.32	3.85	0.0050	0.0135	0.0207	0.0022	0.9557	0.0028	
11 Faridpur	1.42	8.41	25.67	5.89	547.13	0.81	0.0024	0.0143	0.0436	0.0100	0.9284	0.0014	
12 Feni	2.38	5.31	20.00	5.25	1222.82	1.10	0.0019	0.0042	0.0159	0.0042	0.9729	0.0009	
13 Hatiya	1.22	9.45	24.56	2.45	1286.36	1.32	0.0009	0.0071	0.0185	0.0019	0.9706	0.0010	
14 Ishurdi	3.56	14.97	16.56	2.03	3450.87	0.74	0.0010	0.0043	0.0047	0.0006	0.9891	0.0002	
15 Jessore	12.38	23.59	50.43	3.74	244.98	5.04	0.0364	0.0693	0.1482	0.0110	0.7202	0.0148	
16 Khepupara	5.21	7.72	35.30	4.06	1394.81	4.01	0.0036	0.0053	0.0243	0.0028	0.9612	0.0028	
17 Khulna	7.78	26.69	37.26	0.80	207.17	2.16	0.0276	0.0947	0.1322	0.0028	0.7350	0.0077	
18 Kutubdia	6.44	8.07	24.22	3.35	1290.28	6.62	0.0048	0.0060	0.0181	0.0025	0.9636	0.0049	
19 M.Court	0.86	8.41	39.34	2.28	569.32	2.36	0.0014	0.0135	0.0632	0.0037	0.9145	0.0038	
20 Madaripur	5.84	3.59	19.61	5.72	1728.73	6.38	0.0033	0.0020	0.0111	0.0032	0.9768	0.0036	
21 Mongla	8.85	1.44	19.95	4.56	636.55	6.42	0.0131	0.0021	0.0294	0.0067	0.9392	0.0095	
22 Mymensingh	3.94	9.10	33.95	2.54	282.96	3.29	0.0117	0.0271	0.1011	0.0076	0.8427	0.0098	
23 Patuakhali	18.63	37.36	37.92	3.50	661.98	5.33	0.0244	0.0489	0.0496	0.0046	0.8656	0.0070	
24 Rajshahi	8.66	25.66	28.67	2.25	183.78	1.73	0.0345	0.1023	0.1143	0.0090	0.7329	0.0069	
25 Rangamati	2.24	3.59	17.37	12.45	924.94	3.09	0.0023	0.0037	0.0180	0.0129	0.9598	0.0032	
26 Rangpur	10.52	10.48	40.32	6.01	257.61	4.87	0.0319	0.0318	0.1223	0.0182	0.7811	0.0148	
27 Sandwip	2.47	5.93	18.18	4.70	872.43	3.84	0.0027	0.0065	0.0200	0.0052	0.9613	0.0042	
28 Satkhira	6.53	16.34	37.87	2.68	853.76	2.77	0.0071	0.0178	0.0412	0.0029	0.9280	0.0030	
29 Shitakunda	3.96	19.45	36.28	4.67	419.43	2.94	0.0081	0.0400	0.0745	0.0096	0.8617	0.0060	
30 Srimangal	12.08	14.86	29.36	19.03	292.26	5.03	0.0324	0.0399	0.0788	0.0511	0.7843	0.0135	
31 Syadpur	8.91	2.43	16.96	7.16	287.74	8.48	0.0269	0.0073	0.0511	0.0216	0.8675	0.0256	
32 Sylhet	2.42	2.55	37.65	7.92	772.92	5.01	0.0029	0.0031	0.0454	0.0096	0.9329	0.0060	
33 Tangail	17.51	3.91	41.67	11.98	831.70	16.24	0.0190	0.0042	0.0451	0.0130	0.9011	0.0176	
34 Teknaf	4.48	14.28	14.54	4.14	2248.59	3.28	0.0020	0.0062	0.0064	0.0018	0.9822	0.0014	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.3869	0.6879	1.5837	0.2937	30.8232	0.2246	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B19. Determination of Best Fit Distribution
Chi-square values of Rainfall Data for different probability distributions
Total monsoon (Jul-Oct)

							Scaling					Appendix B	
							Rank	1	3	4	2	6	5
							Comparison	1.00	4.60	21.40	1.25	140.37	38.84
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	2.35	9.10	76.69	1.12	550.08	6.41	0.0036	0.0141	0.1188	0.0017	0.8518	0.0099	
2 Bhola	0.50	8.07	63.86	1.63	945.18	2.03	0.0005	0.0079	0.0625	0.0016	0.9255	0.0020	
3 Bogra	1.73	14.28	53.30	0.23	298.78	2.77	0.0047	0.0385	0.1436	0.0006	0.8051	0.0075	
4 Chandpur	9.33	31.17	55.67	2.09	497.74	1.64	0.0156	0.0522	0.0931	0.0035	0.8328	0.0027	
5 Chittagong	4.93	21.17	56.98	9.31	510.05	8.42	0.0081	0.0347	0.0933	0.0152	0.8350	0.0138	
6 Chuadanga	2.67	5.33	52.42	2.25	1702.42	0.69	0.0015	0.0030	0.0297	0.0013	0.9641	0.0004	
7 Comilla	0.74	7.38	56.37	2.63	924.04	6.70	0.0007	0.0074	0.0565	0.0026	0.9260	0.0067	
8 Cox's Bazar	47.58	35.31	126.09	94.19	444.25	7.22E+06	0.0000	0.0000	0.0000	0.0000	0.0001	0.9999	
9 Dhaka	0.97	11.17	51.06	4.45	1364.30	5.57	0.0007	0.0078	0.0355	0.0031	0.9491	0.0039	
10 Dinajpur	2.54	17.38	56.57	4.58	377.89	7.68	0.0054	0.0372	0.1212	0.0098	0.8098	0.0165	
11 Faridpur	0.99	8.07	58.74	3.93	221.59	9.07	0.0033	0.0267	0.1943	0.0130	0.7328	0.0300	
12 Feni	4.04	23.24	90.15	8.47	331.63	507.32	0.0042	0.0241	0.0934	0.0088	0.3437	0.5258	
13 Hatiya	8.16	18.41	65.29	132.42	440.25	416770.10	0.0000	0.0000	0.0002	0.0003	0.0011	0.9984	
14 Ishurdi	13.19	2.55	76.84	5.88	1826.73	9.71	0.0068	0.0013	0.0397	0.0030	0.9441	0.0050	
15 Jessore	3.75	14.28	69.83	1.70	1540.37	5.15	0.0023	0.0087	0.0427	0.0010	0.9421	0.0031	
16 Khepupara	2.16	11.52	93.42	2.57	228.20	306.87	0.0033	0.0179	0.1449	0.0040	0.3540	0.4760	
17 Khulna	1.32	16.34	70.70	3.91	263.01	30.02	0.0034	0.0424	0.1835	0.0101	0.6826	0.0779	
18 Kutubdia	8.72	35.66	77.69	66.17	438.82	27341.36	0.0003	0.0013	0.0028	0.0024	0.0157	0.9776	
19 M.Court	10.92	30.14	100.18	1.56	921.83	2.04	0.0102	0.0283	0.0939	0.0015	0.8642	0.0019	
20 Madaripur	2.48	6.69	61.53	0.49	589.52	6.51	0.0037	0.0100	0.0922	0.0007	0.8836	0.0098	
21 Mongla	4.84	14.22	59.53	0.49	160.22	2.71	0.0200	0.0588	0.2460	0.0020	0.6620	0.0112	
22 Mymensingh	1.45	4.62	53.82	0.45	712.49	3.05	0.0019	0.0060	0.0694	0.0006	0.9183	0.0039	
23 Patuakhali	3.97	28.07	103.76	5.89	330.98	9.61	0.0082	0.0582	0.2151	0.0122	0.6863	0.0199	
24 Rajshahi	1.75	16.69	71.10	1.49	297.95	6.68	0.0044	0.0422	0.1797	0.0038	0.7530	0.0169	
25 Rangamati	2.47	11.17	67.00	3.03	345.34	0.81	0.0057	0.0260	0.1559	0.0070	0.8035	0.0019	
26 Rangpur	4.04	18.76	53.95	2.44	417.10	8.96	0.0080	0.0371	0.1068	0.0048	0.8255	0.0177	
27 Sandwip	3.35	19.14	61.33	1.18	399.82	2.09	0.0069	0.0393	0.1260	0.0024	0.8211	0.0043	
28 Satkhira	1.72	9.10	120.15	0.84	666.16	2.55	0.0022	0.0114	0.1501	0.0010	0.8322	0.0032	
29 Shitakunda	4.60	17.72	63.44	30.44	409.21	46965.07	0.0001	0.0004	0.0013	0.0006	0.0086	0.9889	
30 Srimangal	1.45	15.21	99.75	18.04	179.73	30.48	0.0042	0.0441	0.2894	0.0523	0.5215	0.0884	
31 Syadpur	4.00	5.29	23.96	7.63	269.99	17.36	0.0122	0.0161	0.0730	0.0233	0.8226	0.0529	
32 Sylhet	1.75	20.48	93.48	1.68	309.96	0.61	0.0041	0.0479	0.2184	0.0039	0.7243	0.0014	
33 Tangail	11.05	2.55	46.60	6.41	1414.37	6.01	0.0074	0.0017	0.0313	0.0043	0.9512	0.0040	
34 Teknaf	4.35	18.76	88.14	50.81	387.94	29651.88	0.0001	0.0006	0.0029	0.0017	0.0128	0.9818	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1639	0.7532	3.5072	0.2045	23.0060	6.3652	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B20. Determination of Best Fit Distribution
Chi-square values of Rainfall Data for different probability distributions
Total Post-monsoon (November-February)

							Scaling					Appendix B	
							Rank	3	5	4	2	6	1
							Comparison	3.67	7.07	4.21	2.82	152.93	1.00
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	7.55	13.43	8.41	5.93	1622.02	2.38	0.0045	0.0081	0.0051	0.0036	0.9773	0.0014	
2 Bhola	5.48	19.14	14.03	12.28	527.49	1.98	0.0094	0.0330	0.0242	0.0212	0.9088	0.0034	
3 Bogra	3.66	15.93	6.12	2.26	155.43	0.51	0.0199	0.0866	0.0333	0.0123	0.8452	0.0028	
4 Chandpur	12.50	10.57	19.22	7.46	3271.89	7.79	0.0038	0.0032	0.0058	0.0022	0.9827	0.0023	
5 Chittagong	43.12	54.14	65.29	6.42	527.18	17.03	0.0605	0.0759	0.0915	0.0090	0.7392	0.0239	
6 Chuadanga	3.31	4.57	9.32	21.79	1251.67	3.19	0.0026	0.0035	0.0072	0.0168	0.9674	0.0025	
7 Comilla	3.94	13.79	9.55	5.19	732.63	2.68	0.0051	0.0180	0.0124	0.0068	0.9542	0.0035	
8 Cox's Bazar	6.12	23.43	7.32	4.64	263.96	0.97	0.0200	0.0765	0.0239	0.0151	0.8614	0.0032	
9 Dhaka	13.36	5.21	13.50	18.34	2592.06	6.50	0.0050	0.0020	0.0051	0.0069	0.9785	0.0025	
10 Dinajpur	5.64	20.48	14.85	5.14	190.89	1.99	0.0236	0.0857	0.0622	0.0215	0.7987	0.0083	
11 Faridpur	6.15	9.86	9.25	21.77	4084.91	3.96	0.0015	0.0024	0.0022	0.0053	0.9877	0.0010	
12 Feni	9.95	23.43	7.02	0.78	205.60	1.52	0.0401	0.0944	0.0283	0.0032	0.8280	0.0061	
13 Hatiya	7.30	10.96	9.08	10.00	2573.77	2.42	0.0028	0.0042	0.0035	0.0038	0.9848	0.0009	
14 Ishurdi	3.51	7.00	11.39	10.25	767.21	2.42	0.0044	0.0087	0.0142	0.0128	0.9569	0.0030	
15 Jessore	10.77	11.64	15.15	20.79	4871.48	10.03	0.0022	0.0024	0.0031	0.0042	0.9862	0.0020	
16 Khepupara	45.77	43.79	13.48	0.86	248.89	4.80	0.1280	0.1224	0.0377	0.0024	0.6960	0.0134	
17 Khulna	5.13	15.93	12.87	2.62	1805.58	4.07	0.0028	0.0086	0.0070	0.0014	0.9780	0.0022	
18 Kutubdia	6.19	17.00	16.38	6.31	815.73	3.54	0.0072	0.0196	0.0189	0.0073	0.9429	0.0041	
19 M.Court	5.45	19.14	14.15	24.87	710.64	2.12	0.0070	0.0247	0.0182	0.0320	0.9153	0.0027	
20 Madaripur	4.36	18.79	8.59	5.45	179.01	0.77	0.0201	0.0866	0.0396	0.0251	0.8250	0.0036	
21 Mongla	7.09	11.44	6.89	12.74	183.77	3.00	0.0315	0.0509	0.0306	0.0566	0.8170	0.0134	
22 Mymensingh	3.14	11.29	5.64	3.17	577.09	1.27	0.0052	0.0188	0.0094	0.0053	0.9593	0.0021	
23 Patuakhali	14.09	21.64	12.44	19.27	1051.62	5.69	0.0125	0.0192	0.0111	0.0171	0.9350	0.0051	
24 Rajshahi	3.11	12.36	7.89	7.07	188.83	0.87	0.0141	0.0561	0.0359	0.0321	0.8578	0.0040	
25 Rangamati	4.97	4.86	10.67	25.69	1822.13	1.85	0.0027	0.0026	0.0057	0.0137	0.9743	0.0010	
26 Rangpur	13.52	20.21	15.91	14.21	254.49	3.00	0.0421	0.0629	0.0495	0.0442	0.7920	0.0093	
27 Sandwip	18.75	27.63	18.92	9.19	196.77	4.83	0.0679	0.1001	0.0685	0.0333	0.7127	0.0175	
28 Satkhira	1.99	11.64	9.44	6.53	1817.11	0.40	0.0011	0.0063	0.0051	0.0035	0.9838	0.0002	
29 Shitakunda	6.98	22.00	8.22	10.76	213.47	1.20	0.0266	0.0838	0.0313	0.0410	0.8128	0.0046	
30 Srimangal	15.51	14.38	16.47	12.05	1884.34	7.71	0.0080	0.0074	0.0084	0.0062	0.9661	0.0040	
31 Syadpur	5.91	8.15	7.50	4.74	54.71	2.67	0.0706	0.0974	0.0896	0.0566	0.6539	0.0319	
32 Sylhet	2.89	11.29	9.35	1.21	2266.92	0.39	0.0013	0.0049	0.0041	0.0005	0.9890	0.0002	
33 Tangail	3.76	11.14	4.64	4.84	583.82	1.10	0.0062	0.0183	0.0076	0.0079	0.9582	0.0018	
34 Teknaf	19.54	30.93	10.00	8.23	224.35	3.06	0.0660	0.1044	0.0338	0.0278	0.7576	0.0103	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.7260	1.3995	0.8338	0.5589	30.2837	0.1980	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B21. Determination of Best Fit Distribution
Chi-square values of Evaporation Data for different probability distributions
January

							Scaling						Appendix B
							Rank	1	3	4	2	5	6
							Comparison	1.00	2.44	16.46	1.66	52.35	78.09
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	4.00	22.67	71.51	8.04	162.77	2.06	0.0148	0.0836	0.2638	0.0297	0.6005	0.0076	
2 Bogra	1.21	11.57	100.98	4.57	111.40	17.41	0.0049	0.0468	0.4086	0.0185	0.4508	0.0704	
3 Comilla	20.24	23.00	94.22	243.95	129.24	2.97E+06	0.0000	0.0000	0.0000	0.0001	0.0000	0.9998	
4 Dinajpur	10.90	20.50	67.18	1.98	198.81	44641.93	0.0002	0.0005	0.0015	0.0000	0.0044	0.9933	
5 Faridpur	32.08	28.63	136.06	70.32	111.96	1.27E+08	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
6 Joydevpur	26.98	25.89	91.44	5.35	132.05	9.88E+06	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
7 Khulna	5.68	4.91	112.20	5.33	256.53	6.81	0.0145	0.0125	0.2866	0.0136	0.6553	0.0174	
8 Mymensingh	3.51	6.00	91.66	2.56	658.68	7.30	0.0046	0.0078	0.1191	0.0033	0.8558	0.0095	
9 Rajshahi	35.54	34.31	112.69	1.88	118.45	18887.79	0.0019	0.0018	0.0059	0.0001	0.0062	0.9842	
10 Rangamati	25.19	17.50	54.49	34.53	594.09	37.40	0.0330	0.0229	0.0714	0.0452	0.7784	0.0490	
11 Rangpur	2.90	9.82	84.05	12.34	446.87	39.13	0.0049	0.0165	0.1412	0.0207	0.7509	0.0658	
12 Srimongol	13.91	25.89	72.87	7.56	1843.68	58419.33	0.0002	0.0004	0.0012	0.0001	0.0305	0.9675	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0789	0.1929	1.2994	0.1314	4.1329	6.1645	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B22. Determination of Best Fit Distribution
Chi-square values of Evaporation Data for different probability distributions
February

Station	Scaling						Appendix B						
	Rank	2	3	4	1	6	5	Rank	2	3	4	1	6
Comparison	1.35	1.53	9.00	1.00	30.06	22.72	Comparison	1.35	1.53	9.00	1.00	30.06	22.72
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	2.77	2.67	112.39	2.38	1804.83	2.70	0.0014	0.0014	0.0583	0.0012	0.9362	0.0014	
2 Bogra	3.66	11.57	109.72	0.37	283.60	7.36	0.0088	0.0278	0.2636	0.0009	0.6813	0.0177	
3 Comilla	6.34	18.11	168.56	9.24	127.61	359.43	0.0092	0.0263	0.2445	0.0134	0.1851	0.5215	
4 Dinajpur	2.10	11.00	84.52	2.76	319.54	4.05	0.0050	0.0259	0.1994	0.0065	0.7537	0.0096	
5 Faridpur	13.85	20.74	68.95	2.96	164.02	7.97E+04	0.0002	0.0003	0.0009	0.0000	0.0021	0.9966	
6 Joydevpur	17.64	32.00	87.07	3.22	165.62	3.91E+05	0.0000	0.0001	0.0002	0.0000	0.0004	0.9992	
7 Khulna	6.55	3.09	64.84	4.94	180.91	2.34	0.0249	0.0118	0.2469	0.0188	0.6887	0.0089	
8 Mymensingh	2.63	7.58	96.73	15.14	172.80	142.67	0.0060	0.0173	0.2211	0.0346	0.3949	0.3261	
9 Rajshahi	4.17	11.23	31.87	1.14	143.38	48.37	0.0174	0.0468	0.1327	0.0048	0.5970	0.2014	
10 Rangamati	27.49	22.00	64.72	47.82	571.81	37.89	0.0356	0.0285	0.0839	0.0620	0.7410	0.0491	
11 Rangpur	45.89	31.18	64.39	13.50	170.73	7.21	0.1379	0.0937	0.1934	0.0405	0.5129	0.0216	
12 Srimongol	21.76	33.67	91.55	0.49	689.86	1.51E+06	0.0000	0.0000	0.0001	0.0000	0.0005	0.9994	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.2464	0.2798	1.6448	0.1827	5.4937	4.1525	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B23. Determination of Best Fit Distribution
Chi-square values of Evaporation Data for different probability distributions
March

Station	Scaling						Appendix B						
	Rank	2	3	4	1	6	Rank	2	3	4	1	6	
	Comparison	1.09	1.50	10.92	1.00	82.83	Comparison	1.09	1.50	10.92	1.00	82.83	
		Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Barisal		9.67	3.92	109.99	9.60	537.04	15.29	0.0141	0.0057	0.1605	0.0140	0.7834	0.0223
2 Bogra		2.73	12.43	81.50	4.76	966.86	0.80	0.0026	0.0116	0.0762	0.0044	0.9044	0.0007
3 Comilla		21.62	19.68	71.89	182.93	180.18	1.86E+07	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
4 Dinajpur		15.15	21.50	74.10	6.01	1799.58	6.17E+05	0.0000	0.0000	0.0001	0.0000	0.0029	0.9969
5 Faridpur		39.63	37.05	126.11	5.43	169.53	1.66E+08	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
6 Joydevpur		18.08	20.33	76.98	7.19	244.78	332487	0.0001	0.0001	0.0002	0.0000	0.0007	0.9989
7 Khulna		4.21	1.27	59.34	3.13	572.17	3.70	0.0065	0.0020	0.0922	0.0049	0.8887	0.0057
8 Mymensingh		1.50	2.56	89.08	0.71	361.28	2.36	0.0033	0.0056	0.1947	0.0015	0.7897	0.0052
9 Rajshahi		18.88	18.15	65.70	1.26	152.33	6721.15	0.0027	0.0028	0.0094	0.0002	0.0218	0.9633
10 Rangamati		20.37	6.50	36.30	25.05	559.50	27.93	0.0301	0.0096	0.0537	0.0371	0.8281	0.0413
11 Rangpur		4.05	5.73	106.25	3.37	1440.63	1.25	0.0026	0.0037	0.0681	0.0022	0.9227	0.0008
12 Srimongol		6.25	26.00	48.94	2.78	302.81	7.35	0.0159	0.0660	0.1242	0.0070	0.7683	0.0186
Critical Chi Square Value (95% Confidence Level)		5.99	5.99	7.81	5.99	7.81	5.99	0.0779	0.1069	0.7793	0.0714	5.9109	5.0538

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B24. Determination of Best Fit Distribution
Chi-square values of Evaporation Data for different probability distributions
April

							Scaling			Appendix B			
							Rank	2	3	4	1	6	5
							Comparison	1.04	2.28	10.40	1.00	96.95	51.30
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	6.93	2.67	81.31	6.58	2280.57	2.36	0.0029	0.0011	0.0342	0.0028	0.9581	0.0010	
2 Bogra	1.80	12.43	66.91	2.08	390.66	0.30	0.0038	0.0262	0.1411	0.0044	0.8239	0.0006	
3 Comilla	4.64	0.21	65.75	3.48	1089.27	4.27	0.0040	0.0002	0.0563	0.0030	0.9329	0.0037	
4 Dinajpur	4.07	12.50	40.15	4.02	239.71	82.72	0.0106	0.0326	0.1048	0.0105	0.6256	0.2159	
5 Faridpur	13.90	19.68	69.87	2.60	220.88	1.28E+05	0.0001	0.0002	0.0005	0.0000	0.0017	0.9975	
6 Joydevpur	5.44	13.67	47.22	2.34	250.62	614.96	0.0058	0.0146	0.0505	0.0025	0.2683	0.6582	
7 Khulna	4.39	3.83	65.13	4.98	688.98	1.82	0.0057	0.0050	0.0847	0.0065	0.8958	0.0024	
8 Mymensingh	15.32	26.00	77.38	4.91	201.75	3.79E+05	0.0000	0.0001	0.0002	0.0000	0.0005	0.9991	
9 Rajshahi	15.96	15.85	57.60	0.83	1015.47	5752.82	0.0023	0.0023	0.0084	0.0001	0.1481	0.8388	
10 Rangamati	11.49	6.50	30.06	19.03	555.45	14.99	0.0180	0.0102	0.0471	0.0298	0.8713	0.0235	
11 Rangpur	1.85	5.27	54.81	2.16	416.26	1.80	0.0038	0.0109	0.1137	0.0045	0.8633	0.0037	
12 Srimongol	8.45	28.11	54.39	4.18	328.27	14.52	0.0193	0.0642	0.1242	0.0095	0.7496	0.0331	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0764	0.1676	0.7658	0.0736	7.1390	3.7775	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B25. Determination of Best Fit Distribution
Chi-square values of Evaporation Data for different probability distributions
May

							Scaling					Appendix B	
							Rank	1	3	4	2	6	5
							Comparison	1.00	2.15	10.60	1.25	68.20	30.74
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	6.67	6.83	98.49	<i>1.74</i>	560.01	<i>3.25</i>	0.0098	0.0101	0.1455	0.0026	0.8272	0.0048	
2 Bogra	7.95	13.30	93.63	<i>0.98</i>	3052.25	<i>4.44</i>	0.0025	0.0042	0.0295	0.0003	0.9621	0.0014	
3 Comilla	<i>2.29</i>	12.32	67.78	7.32	145.57	146.31	0.0060	0.0323	0.1776	0.0192	0.3815	0.3834	
4 Dinajpur	<i>3.43</i>	17.00	48.11	<i>2.75</i>	250.48	39.12	0.0095	0.0471	0.1333	0.0076	0.6941	0.1084	
5 Faridpur	6.61	16.00	52.22	<i>4.43</i>	217.60	2743.27101	0.0022	0.0053	0.0172	0.0015	0.0716	0.9024	
6 Joydevpur	6.26	7.56	40.13	<i>14.37</i>	607.32	51.65	0.0086	0.0104	0.0552	0.0198	0.8350	0.0710	
7 Khulna	<i>2.05</i>	<i>2.17</i>	65.80	9.56	483.57	<i>1.81</i>	0.0036	0.0038	0.1165	0.0169	0.8559	0.0032	
8 Mymensingh	15.63	21.50	79.46	<i>3.11</i>	243.39	178370.34	0.0001	0.0001	0.0004	0.0000	0.0014	0.9980	
9 Rajshahi	18.29	18.15	66.16	9.84	278.36	715.10	0.0165	0.0164	0.0598	0.0089	0.2517	0.6466	
10 Rangamati	12.57	6.00	25.96	<i>22.67</i>	554.51	15.83	0.0197	0.0094	0.0407	0.0356	0.8698	0.0248	
11 Rangpur	<i>4.06</i>	11.57	90.04	<i>5.07</i>	249.18	27.39	0.0105	0.0299	0.2325	0.0131	0.6434	0.0707	
12 Srimongol	6.96	24.42	46.43	<i>2.80</i>	338.05	9.57	0.0162	0.0570	0.1084	0.0065	0.7894	0.0223	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1053	0.2260	1.1166	0.1319	7.1831	3.2371	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B26. Determination of Best Fit Distribution
Chi-square values of Evaporation Data for different probability distributions
June

Station	Scaling						Appendix B					
	Rank 1	Rank 2	Rank 4	Rank 3	Rank 6	Rank 5	Comparison	Rank 5				
1 Barisal	3.42	18.92	52.60	4.50	226.29	1083.46	1.00	1.78	10.34	1.84	46.66	33.42
2 Bogra	2.70	11.13	88.28	1.26	1069.61	1.39	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
3 Comilla	9.04	2.56	52.53	8.12	283.84	9.50	0.0025	0.0136	0.0379	0.0032	0.1629	0.7799
4 Dinajpur	5.44	13.00	47.18	11.92	1470.75	3604.79	0.0023	0.0095	0.0752	0.0011	0.9108	0.0012
5 Faridpur	22.38	24.42	79.59	2.01	185.88	1.13E+07	0.0247	0.0070	0.1437	0.0222	0.7764	0.0260
6 Joydevpur	0.28	9.22	38.64	2.59	166.15	3.04	0.0011	0.0025	0.0092	0.0023	0.2854	0.6995
7 Khulna	8.73	13.00	97.63	2.57	131.29	4.63	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
8 Mymensingh	16.24	27.50	79.64	3.61	190.95	2.67E+06	0.0013	0.0419	0.1757	0.0118	0.7555	0.0138
9 Rajshahi	14.17	22.00	61.77	16.81	151.39	466.51	0.0338	0.0504	0.3786	0.0100	0.5092	0.0179
10 Rangamati	11.90	2.50	24.13	26.53	594.62	13.36	0.0000	0.0000	0.0000	0.0000	0.0001	0.9999
11 Rangpur	4.15	8.96	121.72	6.87	297.03	2.98	0.0193	0.0300	0.0843	0.0229	0.2066	0.6367
12 Srimongol	6.49	20.74	40.69	47.56	332.55	8.25	0.0177	0.0037	0.0359	0.0394	0.8835	0.0198
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0094	0.0203	0.2756	0.0155	0.6725	0.0067
							0.0142	0.0454	0.0892	0.1042	0.7288	0.0181
							0.1263	0.2244	1.3052	0.2327	5.8917	4.2197

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B27. Determination of Best Fit Distribution
Chi-square values of Evaporation Data for different probability distributions
July

Station	Scaling						Appendix B					
	Rank 3	Rank 2	Rank 4	Rank 1	Rank 6	Rank 5	Comparison 1.27	Comparison 1.08	Comparison 8.81	Comparison 1.00	Comparison 50.53	Comparison 22.08
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Barisal	17.94	41.83	111.60	6.17	208.68	1.23E+07	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
2 Bogra	4.88	2.00	75.46	2.52	986.74	3.87	0.0045	0.0019	0.0702	0.0023	0.9175	0.0036
3 Comilla	4.90	6.00	63.93	3.16	860.48	3.59	0.0052	0.0064	0.0679	0.0034	0.9134	0.0038
4 Dinajpur	7.55	9.50	40.05	4.28	267.53	19.97	0.0217	0.0272	0.1148	0.0123	0.7668	0.0572
5 Faridpur	11.24	27.50	77.03	1.77	214.64	74437.22	0.0002	0.0004	0.0010	0.0000	0.0029	0.9956
6 Joydevpur	5.79	11.53	71.60	2.04	925.45	3.07	0.0057	0.0113	0.0702	0.0020	0.9078	0.0030
7 Khulna	3.14	2.17	44.00	4.68	939.53	1.70	0.0032	0.0022	0.0442	0.0047	0.9440	0.0017
8 Mymensingh	10.57	23.50	72.87	8.57	194.07	15031.44	0.0007	0.0015	0.0047	0.0006	0.0127	0.9798
9 Rajshahi	34.20	8.92	279.88	35.17	79.94	20.77	0.0745	0.0194	0.6099	0.0766	0.1742	0.0453
10 Rangamati	9.53	6.50	25.38	21.71	573.23	9.98	0.0147	0.0101	0.0393	0.0336	0.8869	0.0154
11 Rangpur	2.38	2.87	72.30	1.77	554.24	2.35	0.0037	0.0045	0.1137	0.0028	0.8716	0.0037
12 Srimongol	23.79	35.47	58.30	1.73	396.95	8.72	0.0453	0.0676	0.1111	0.0033	0.7561	0.0166
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1794	0.1524	1.2470	0.1416	7.1539	3.1257

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B28. Determination of Best Fit Distribution
Chi-square values of Evaporation Data for different probability distributions
August

Station	Scaling						Appendix B					
	Rank 1		Rank 2		Rank 4		Rank 3		Rank 5		Rank 6	
	Comparison	1.00	1.56	8.65	1.60	26.39	33.09	Normal	Uniform	Exponential	Log-Normal	Poisson
1 Barisal	7.30	18.92	62.54	9.88	313.04	86048.80	0.0001	0.0002	0.0007	0.0001	0.0036	0.9952
2 Bogra	0.64	5.91	68.24	1.08	1076.69	0.87	0.0006	0.0051	0.0592	0.0009	0.9335	0.0008
3 Comilla	12.41	21.44	75.59	38.04	166.85	105066.04	0.0001	0.0002	0.0007	0.0004	0.0016	0.9970
4 Dinajpur	9.75	15.00	62.75	11.79	190.21	2588.94	0.0034	0.0052	0.0218	0.0041	0.0661	0.8994
5 Faridpur	9.81	18.11	62.24	9.39	188.80	16181.249	0.0006	0.0011	0.0038	0.0006	0.0115	0.9825
6 Joydevpur	1.33	2.71	51.74	6.38	1058.87	0.95	0.0012	0.0024	0.0461	0.0057	0.9438	0.0008
7 Khulna	4.46	7.17	54.96	9.16	125.07	10.66	0.0211	0.0339	0.2599	0.0433	0.5914	0.0504
8 Mymensingh	17.03	29.00	84.54	0.26	189.42	1294149.16	0.0000	0.0000	0.0001	0.0000	0.0001	0.9998
9 Rajshahi	16.67	20.46	210.28	17.98	19.73	9.64	0.0566	0.0694	0.7134	0.0610	0.0669	0.0327
10 Rangamati	18.23	8.50	38.00	36.36	575.59	22.62	0.0261	0.0122	0.0543	0.0520	0.8231	0.0324
11 Rangpur	4.90	13.30	64.36	48.56	227.16	328.71	0.0071	0.0194	0.0937	0.0707	0.3307	0.4785
12 Srimongol	18.77	41.79	69.33	10.48	232.16	8.92	0.0492	0.1096	0.1818	0.0275	0.6086	0.0234
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1660	0.2587	1.4354	0.2662	4.3808	5.4928

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B29. Determination of Best Fit Distribution
Chi-square values of Evaporation Data for different probability distributions
September

							Scaling				Appendix B	
Rank							1	3	4	2	6	5
Comparison							1.00	1.54	9.29	1.31	30.46	25.02
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Barisal	26.29	40.70	113.45	9.93	553.36	1.56E+08	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
2 Bogra	6.12	6.35	113.07	6.61	1032.38	4.49	0.0052	0.0054	0.0967	0.0057	0.8831	0.0038
3 Comilla	6.33	11.44	89.62	19.16	282.40	13.40	0.0150	0.0271	0.2122	0.0454	0.6686	0.0317
4 Dinajpur	2.25	13.50	51.33	9.16	158.57	43.62	0.0081	0.0485	0.1844	0.0329	0.5695	0.1567
5 Faridpur	13.60	20.74	69.56	1.74	581.45	1.11E+05	0.0001	0.0002	0.0006	0.0000	0.0052	0.9938
6 Joydevpur	6.43	2.71	59.35	5.16	126.39	7.66	0.0310	0.0130	0.2858	0.0248	0.6085	0.0369
7 Khulna	11.46	10.36	70.10	6.68	138.02	9.09	0.0467	0.0422	0.2853	0.0272	0.5617	0.0370
8 Mymensingh	11.83	15.00	62.29	8.45	189.08	113511.85	0.0001	0.0001	0.0005	0.0001	0.0017	0.9975
9 Rajshahi	2.19	2.00	70.99	1.88	198.98	1.00	0.0079	0.0072	0.2563	0.0068	0.7182	0.0036
10 Rangamati	26.84	15.50	53.69	39.56	579.76	34.01	0.0358	0.0207	0.0716	0.0528	0.7737	0.0454
11 Rangpur	13.34	17.09	58.12	202.82	392.10	9.49E+06	0.0000	0.0000	0.0000	0.0000	0.0000	0.9999
12 Srimongol	9.09	38.11	84.38	12.26	195.04	25.27	0.0250	0.1047	0.2317	0.0337	0.5356	0.0694
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1749	0.2691	1.6251	0.2293	5.3259	4.3757

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B30. Determination of Best Fit Distribution
Chi-square values of Evaporation Data for different probability distributions
October

							Scaling				Appendix B		
							Rank	3	1	4	2	6	5
							Comparison	3.29	1.00	6.58	1.21	26.38	17.99
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	19.54	37.22	103.99	1.68	200.19	2.54E+07	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
2 Bogra	2.69	11.13	99.88	1.65	1258.67	3.27	0.0020	0.0081	0.0725	0.0012	0.9139	0.0024	
3 Comilla	2.69	16.00	67.04	11.99	149.14	29.65	0.0097	0.0579	0.2425	0.0434	0.5394	0.1072	
4 Dinajpur	5.38	1.00	107.43	9.02	1545.26	5.34	0.0032	0.0006	0.0642	0.0054	0.9234	0.0032	
5 Faridpur	21.14	37.05	99.33	13.36	279.79	1.43E+05	0.0001	0.0003	0.0007	0.0001	0.0019	0.9969	
6 Joydevpur	4.89	14.22	79.04	10.19	126.48	280.81	0.0095	0.0276	0.1533	0.0198	0.2453	0.5446	
7 Khulna	6.45	1.27	32.58	14.02	425.02	5.67	0.0133	0.0026	0.0672	0.0289	0.8763	0.0117	
8 Mymensingh	22.29	35.50	98.58	1.25	176.13	6914714.69	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
9 Rajshahi	7.54	14.31	168.55	7.24	180.82	35.30	0.0182	0.0346	0.4074	0.0175	0.4370	0.0853	
10 Rangamati	27.23	15.50	52.84	70.42	582.90	41.04	0.0345	0.0196	0.0669	0.0891	0.7379	0.0520	
11 Rangpur	2.44	3.52	116.35	3.98	416.65	2.32	0.0045	0.0065	0.2134	0.0073	0.7641	0.0042	
12 Srimongol	504.17	45.89	93.20	36.53	141.29	14.07	0.6037	0.0549	0.1116	0.0437	0.1692	0.0169	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.6987	0.2126	1.3996	0.2564	5.6085	3.8242	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B31. Determination of Best Fit Distribution
Chi-square values of Evaporation Data for different probability distributions
November

							Scaling				Appendix B		
							Rank	3	2	4	1	6	5
							Comparison	1.14	1.10	7.54	1.00	16.54	11.91
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	13.92	22.00	144.04	48.58	162.37	1.48E+06	0.0000	0.0000	0.0001	0.0000	0.0001	0.9997	
2 Bogra	5.69	23.00	84.84	24.10	140.83	553.92	0.0068	0.0276	0.1019	0.0289	0.1692	0.6655	
3 Comilla	37.27	26.50	50.90	12.60	198.40	7.13	0.1120	0.0796	0.1529	0.0379	0.5962	0.0214	
4 Dinajpur	3.32	9.68	132.16	1.71	418.57	3.63	0.0058	0.0170	0.2322	0.0030	0.7355	0.0064	
5 Faridpur	15.93	27.00	77.37	7.40	157.66	3.12E+05	0.0001	0.0001	0.0002	0.0000	0.0005	0.9991	
6 Joydevpur	1.71	6.44	131.75	0.18	129.98	1.14	0.0063	0.0238	0.4858	0.0007	0.4793	0.0042	
7 Khulna	2.78	4.00	61.53	0.69	185.34	1.36	0.0109	0.0156	0.2406	0.0027	0.7248	0.0053	
8 Mymensingh	26.92	32.00	116.35	50.94	146.03	1993.48	0.0114	0.0135	0.0492	0.0215	0.0617	0.8427	
9 Rajshahi	9.69	1.33	173.79	9.59	22.00	5.40	0.0437	0.0060	0.7835	0.0433	0.0992	0.0243	
10 Rangamati	18.06	16.00	49.77	36.23	588.01	29.12	0.0245	0.0217	0.0675	0.0491	0.7976	0.0395	
11 Rangpur	9.68	2.10	119.61	6.09	6223.74	10.83	0.0015	0.0003	0.0188	0.0010	0.9767	0.0017	
12 Srimongol	55.90	58.59	76.90	52.53	187.04	14.86	0.1254	0.1314	0.1725	0.1178	0.4195	0.0333	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.3483	0.3368	2.3054	0.3060	5.0604	3.6431	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B32. Determination of Best Fit Distribution
Chi-square values of Evaporation Data for different probability distributions
December

Station	Scaling						Appendix B					
	Rank 3		Rank 2		Rank 4		Rank 1		Rank 5		Rank 6	
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Barisal	49.90	33.74	129.64	26.07	84.87	7.03	0.1506	0.1019	0.3914	0.0787	0.2562	0.0212
2 Bogra	21.04	31.18	95.88	2.76	176.19	1.06E+07	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
3 Comilla	23.56	53.00	74.46	8.57	235.66	13.48	0.0576	0.1297	0.1822	0.0210	0.5766	0.0330
4 Dinajpur	3.41	9.16	62.14	22.26	316.73	500.58	0.0037	0.0100	0.0680	0.0243	0.3464	0.5475
5 Faridpur	16.63	20.33	77.13	28.90	154.78	914.65	0.0137	0.0168	0.0636	0.0238	0.1277	0.7544
6 Joydevpur	16.76	9.18	274.50	7.46	567.27	45.58	0.0182	0.0100	0.2981	0.0081	0.6161	0.0495
7 Khulna	11.94	11.00	161.43	8.17	15.98	9.66	0.0547	0.0504	0.7399	0.0374	0.0733	0.0443
8 Mymensingh	18.54	20.33	76.49	3.65	134.91	4.57E+05	0.0000	0.0000	0.0002	0.0000	0.0003	0.9994
9 Rajshahi	2.44	0.50	81.54	1.69	121.88	3.17	0.0115	0.0024	0.3861	0.0080	0.5770	0.0150
10 Rangamati	12.44	13.37	28.47	30.24	776.91	11.59	0.0142	0.0153	0.0326	0.0346	0.8899	0.0133
11 Rangpur	4.85	14.82	88.89	25.44	403.66	1839.79	0.0020	0.0062	0.0374	0.0107	0.1698	0.7738
12 Srimongol	74.59	58.59	77.99	37.54	199.79	12.58	0.1618	0.1271	0.1691	0.0814	0.4333	0.0273
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.4883	0.4697	2.3685	0.3282	4.0666	4.2787

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B33.Determination of Best Fit Distribution
Chi-square values of Evaporation Data for different probability distributions
Annual

							Scaling						
							Rank	2	1	4	3	5	Appendix B 6
							Comparison	1.04	1.00	6.92	1.51	29.46	34.46
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	4.81	14.75	107.18	21.03	408.68	2789.84	0.0014	0.0044	0.0320	0.0063	0.1221	0.8337	
2 Bogra	5.11	11.13	153.96	0.63	554.00	1.85	0.0070	0.0153	0.2119	0.0009	0.7624	0.0025	
3 Comilla	17.10	24.48	87.12	38.22	610.16	112.18	0.0192	0.0275	0.0980	0.0430	0.6861	0.1262	
4 Dinajpur	28.89	32.50	105.72	60.37	504.92	2.88E+09	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
5 Faridpur	23.16	16.50	98.43	24.89	462.60	178.860998	0.0288	0.0205	0.1224	0.0309	0.5751	0.2223	
6 Joydevpur	18.02	18.11	140.89	12.94	311.19	305.84	0.0223	0.0224	0.1746	0.0160	0.3856	0.3790	
7 Khulna	12.82	8.00	103.41	10.95	162.21	17.67	0.0407	0.0254	0.3282	0.0348	0.5148	0.0561	
8 Mymensingh	16.66	18.50	76.77	81.44	497.38	9.22E+06	0.0000	0.0000	0.0000	0.0000	0.0001	0.9999	
9 Rajshahi	35.11	34.31	188.38	36.79	210.08	4132.04	0.0076	0.0074	0.0406	0.0079	0.0453	0.8912	
10 Rangamati	32.90	16.00	62.23	94.16	739.35	50.88	0.0330	0.0161	0.0625	0.0946	0.7427	0.0511	
11 Rangpur	12.24	21.57	153.64	35.56	350.68	85210.95	0.0001	0.0003	0.0018	0.0004	0.0041	0.9933	
12 Srimongol	6.58	18.11	36.84	7.33	752.72	2.65	0.0080	0.0220	0.0447	0.0089	0.9132	0.0032	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1683	0.1613	1.1167	0.2437	4.7516	5.5585	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B34. Determination of Best Fit Distribution
Chi-square values of Evaporation Data for different probability distributions
Yearly Maximum Monthly

Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Barisal	10.80	5.58	108.88	6.31	2797.38	7.31
2 Bogra	4.16	18.09	106.06	6.20	245.99	0.73
3 Comilla	1.82	14.95	88.38	6.92	152.87	21.75
4 Dinajpur	1.21	7.50	52.43	1.44	227.84	1.20
5 Faridpur	8.11	4.00	89.22	5.71	415.61	4.31
6 Joydevpur	6.63	10.89	150.56	4.16	172.36	3.11
7 Khulna	1.51	1.33	59.42	2.34	1240.52	0.87
8 Mymensingh	1.19	4.00	97.73	2.41	340.09	3.73
9 Rajshahi	9.92	8.92	103.27	6.43	130.97	14.63
10 Rangamati	15.62	8.00	33.21	34.37	545.40	23.12
11 Rangpur	3.20	3.74	89.65	2.39	1701.34	2.97
12 Srimongol	16.78	34.95	83.00	1.90	277.03	9.41
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Rank	Scaling					Appendix B
	2	4	5	1	6	3
Comparison	1.04	1.92	14.74	1.00	55.45	1.40
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
	0.0037	0.0019	0.0371	0.0021	0.9527	0.0025
	0.0109	0.0474	0.2782	0.0163	0.6453	0.0019
	0.0064	0.0522	0.3083	0.0241	0.5332	0.0759
	0.0042	0.0257	0.1798	0.0049	0.7813	0.0041
	0.0154	0.0076	0.1693	0.0108	0.7887	0.0082
	0.0191	0.0313	0.4330	0.0120	0.4957	0.0090
	0.0012	0.0010	0.0455	0.0018	0.9499	0.0007
	0.0027	0.0089	0.2176	0.0054	0.7572	0.0083
	0.0362	0.0325	0.3767	0.0234	0.4777	0.0534
	0.0237	0.0121	0.0503	0.0521	0.8267	0.0350
	0.0018	0.0021	0.0497	0.0013	0.9435	0.0016
	0.0397	0.0826	0.1962	0.0045	0.6548	0.0222
	0.1647	0.3054	2.3417	0.1588	8.8066	0.2228

Table B35. Determination of Best Fit Distribution
Chi-square values of Evaporation Data for different probability distributions
Yearly Average Monthly

							Scaling				Appendix B	
Rank		1	2	4	3	5	6					
Comparison		1.00	1.10	8.07	1.12	28.54	36.89					
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Barisal	5.28	16.42	114.62	21.20	3099.70	3787.43	0.0007	0.0023	0.0163	0.0030	0.4400	0.5376
2 Bogra	4.94	11.13	150.83	0.57	140.60	1.89	0.0159	0.0359	0.4866	0.0018	0.4536	0.0061
3 Comilla	13.08	18.76	70.59	38.23	723.84	6235.63	0.0018	0.0026	0.0099	0.0054	0.1019	0.8782
4 Dinajpur	18.14	25.50	118.40	60.56	136.14	638869.11	0.0000	0.0000	0.0002	0.0001	0.0002	0.9994
5 Faridpur	22.61	13.50	96.05	24.91	3187.98	39.53	0.0067	0.0040	0.0284	0.0074	0.9419	0.0117
6 Joydevpur	17.58	18.11	142.31	12.96	378.43	222.82	0.0222	0.0229	0.1796	0.0164	0.4777	0.2813
7 Khulna	12.83	8.00	102.98	10.85	184.56	17.75	0.0381	0.0237	0.3056	0.0322	0.5477	0.0527
8 Mymensingh	14.60	32.50	110.23	81.37	160.61	178571.02	0.0001	0.0002	0.0006	0.0005	0.0009	0.9978
9 Rajshahi	27.56	26.62	152.36	36.92	123.12	4324.40	0.0059	0.0057	0.0325	0.0079	0.0262	0.9219
10 Rangamati	39.86	16.50	62.95	70.96	626.66	61.64	0.0454	0.0188	0.0717	0.0808	0.7133	0.0702
11 Rangpur	9.49	20.26	143.87	36.43	164.53	32955.11	0.0003	0.0006	0.0043	0.0011	0.0049	0.9888
12 Srimongol	7.31	20.74	47.63	7.37	286.02	9.23	0.0193	0.0548	0.1259	0.0195	0.7561	0.0244
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1564	0.1716	1.2616	0.1759	4.4645	5.7700

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B36. Determination of Best Fit Distribution
Chi-square values of Evaporation Data for different probability distributions.
Yearly Average Daily

		Scaling					Appendix B
Rank		1	3	5	2	4	6
Comparison		1.00	1.55	8.80	1.17	6.99	23.53
Station		Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1	Barisal	3.02	16.83	106.64	17.37	2.97	865.89
2	Bogra	3.41	12.43	142.77	1.37	17.11	1.62
3	Comilla	16.78	14.95	66.81	39.00	661.72	522.50
4	Dinajpur	16.72	18.50	86.29	55.34	33.95	9.40E+06
5	Faridpur	20.64	13.50	89.04	24.87	65.03	87.11
6	Joydevpur	19.73	21.44	145.45	12.89	19.24	766.32
7	Khulna	11.02	8.00	96.31	7.98	15.58	31.33
8	Mymensingh	20.48	20.50	94.97	74.47	135.90	7.82E+06
9	Rajshahi	29.22	26.62	140.59	36.29	37.00	107612.14
10	Rangamati	40.33	16.50	67.66	82.52	1850.78	41.32
11	Rangpur	12.69	21.13	131.51	32.63	8.90	2.35E+06
12	Srimongol	6.07	18.11	38.98	7.53	12.02	2.71
Critical Chi Square Value (95% Confidence Level)		5.99	5.99	7.81	5.99	7.81	5.99
		0.0030	0.0166	0.1053	0.0172	0.0029	0.8550
		0.0191	0.0696	0.7989	0.0077	0.0957	0.0091
		0.0127	0.0113	0.0505	0.0295	0.5006	0.3953
		0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
		0.0687	0.0450	0.2966	0.0828	0.2166	0.2902
		0.0200	0.0218	0.1477	0.0131	0.0195	0.7779
		0.0647	0.0470	0.5658	0.0469	0.0915	0.1841
		0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
		0.0003	0.0002	0.0013	0.0003	0.0003	0.9975
		0.0192	0.0079	0.0322	0.0393	0.8817	0.0197
		0.0000	0.0000	0.0001	0.0000	0.0000	0.9999
		0.0711	0.2119	0.4563	0.0882	0.1407	0.0317
		0.2788	0.4313	2.4547	0.3250	1.9498	6.5603

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B37. Determination of Best Fit Distribution
Chi-square values of Evaporation Data for different probability distributions
Yearly Maximum Daily

Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Barisal	2.49	5.17	33.92	4.50	84.65	3.29
2 Bogra	211.17	51.13	29.46	7.05	169.26	9.17
3 Comilla	7.19	17.81	33.87	6.30	67.37	2.72
4 Dinajpur	172.41	61.50	38.43	16.51	157.19	12.69
5 Faridpur	5.85	11.50	23.70	1.14	108.70	2.71
6 Joydevpur	23.65	45.89	37.19	8.64	102.94	8.80
7 Khulna	3.64	2.17	47.58	7.55	8.13	4.81
8 Mymensingh	2.51	2.50	49.07	5.46	37.07	2.50
9 Rajshahi	30.74	42.77	31.98	13.10	97.77	10.20
10 Rangamati	16.03	6.00	35.14	6.88	697.58	10.71
11 Rangpur	4.04	8.52	33.61	1.94	313.39	3.88
12 Srimongol	12.09	19.68	25.46	9.12	54.34	4.90
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99

Rank	Scaling					Appendix B
	4	3	5	2	6	1
Comparison	3.95	3.23	7.46	1.38	17.58	1.00
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
	0.0186	0.0385	0.2531	0.0336	0.6316	0.0246
	0.4425	0.1071	0.0617	0.0148	0.3547	0.0192
	0.0532	0.1317	0.2504	0.0466	0.4981	0.0201
	0.3758	0.1341	0.0838	0.0360	0.3427	0.0277
	0.0381	0.0749	0.1543	0.0075	0.7077	0.0176
	0.1041	0.2021	0.1637	0.0381	0.4533	0.0387
	0.0493	0.0293	0.6440	0.1022	0.1100	0.0651
	0.0254	0.0252	0.4951	0.0551	0.3740	0.0252
	0.1357	0.1888	0.1412	0.0578	0.4315	0.0450
	0.0208	0.0078	0.0455	0.0089	0.9032	0.0139
	0.0110	0.0233	0.0920	0.0053	0.8577	0.0106
	0.0962	0.1567	0.2028	0.0726	0.4327	0.0390
	1.3707	1.1195	2.5875	0.4785	6.0971	0.3468

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B38. Determination of Best Fit Distribution
Chi-square values of Evaporation Data for different probability distributions
Total Pre-monsoon (March-June)

Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Barisal	5.49	2.67	106.43	12.14	1767.42	5.34
2 Bogra	3.57	11.57	108.71	2.38	2171.47	0.83
3 Comilla	21.26	23.05	73.05	180.46	387.55	283.39
4 Dinajpur	10.71	18.50	65.04	7.76	351.67	51337.14
5 Faridpur	24.07	18.50	73.04	36.38	405.58	1499.68
6 Joydevpur	11.41	15.89	55.64	2.41	321.84	91700.35
7 Khulna	13.19	3.83	124.13	12.28	189.58	9.82
8 Mymensingh	21.36	17.50	87.93	50.23	314.12	312.85
9 Rajshahi	36.87	34.31	112.11	4.93	212.32	30921.29
10 Rangamati	17.05	8.00	37.79	37.27	564.30	15.70
11 Rangpur	8.45	16.35	90.75	47.58	297.51	60440.36
12 Srimongol	12.03	41.26	77.27	6.77	485.32	14.50
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Rank	Scaling					Appendix B
	1	2	4	3	5	6
Comparison	1.00	1.02	5.82	2.54	33.96	36.94
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
	0.0029	0.0014	0.0560	0.0064	0.9305	0.0028
	0.0016	0.0050	0.0473	0.0010	0.9447	0.0004
	0.0219	0.0238	0.0754	0.1863	0.4001	0.2925
	0.0002	0.0004	0.0013	0.0001	0.0068	0.9912
	0.0117	0.0090	0.0355	0.0177	0.1971	0.7290
	0.0001	0.0002	0.0006	0.0000	0.0035	0.9956
	0.0374	0.0109	0.3518	0.0348	0.5373	0.0278
	0.0266	0.0218	0.1094	0.0625	0.3907	0.3891
	0.0012	0.0011	0.0036	0.0002	0.0068	0.9872
	0.0251	0.0118	0.0556	0.0548	0.8297	0.0231
	0.0001	0.0003	0.0015	0.0008	0.0049	0.9924
	0.0189	0.0648	0.1213	0.0106	0.7617	0.0228
	0.1476	0.1503	0.8592	0.3752	5.0138	5.4539

Table B39. Determination of Best Fit Distribution
Chi-square values of Evaporation Data for different probability distributions
Total monsoon (July-October)

							Scaling				Appendix B		
							Rank	1	2	4	3	5	6
							Comparison	1.00	1.16	6.44	1.23	23.36	47.27
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	29.31	27.25	98.37	4.23	416.99	2.85E+09	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
2 Bogra	1.63	8.09	160.69	0.88	410.36	2.49	0.0028	0.0138	0.2751	0.0015	0.7025	0.0043	
3 Comilla	31.26	24.48	96.34	42.37	449.86	396.66	0.0300	0.0235	0.0926	0.0407	0.4322	0.3811	
4 Dinajpur	9.06	22.50	90.53	37.63	293.65	7497.12	0.0011	0.0028	0.0114	0.0047	0.0369	0.9430	
5 Faridpur	17.12	23.00	85.63	22.58	375.05	2.81E+04	0.0006	0.0008	0.0030	0.0008	0.0131	0.9817	
6 Joydevpur	16.72	25.89	99.42	47.80	279.40	1.62E+05	0.0001	0.0002	0.0006	0.0003	0.0017	0.9971	
7 Khulna	9.65	10.50	69.07	11.37	157.06	41.20	0.0323	0.0351	0.2311	0.0381	0.5256	0.1379	
8 Mymensingh	63.50	46.50	155.83	3.03	335.88	2.97E+11	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
9 Rajshahi	11.83	15.85	204.53	17.74	148.13	5558.45	0.0020	0.0027	0.0343	0.0030	0.0249	0.9332	
10 Rangamati	39.90	15.50	65.43	41.56	571.40	46.15	0.0512	0.0199	0.0839	0.0533	0.7326	0.0592	
11 Rangpur	13.15	12.87	126.13	23.35	295.24	664.67	0.0116	0.0113	0.1111	0.0206	0.2600	0.5854	
12 Srimongol	13.75	49.16	91.82	16.41	593.31	21.79	0.0175	0.0625	0.1168	0.0209	0.7546	0.0277	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1491	0.1727	0.9599	0.1838	3.4841	7.0505	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B40. Determination of Best Fit Distribution
Chi-square values of Evaporation Data for different probability distributions
Total Post-monsoon (November-February)

							Scaling						
							Rank			Appendix B			
							1	3	4	2	5	6	
							Comparison	1.00	1.87	13.86	1.25	34.56	35.47
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	7.56	23.30	134.64	4.08	266.32	4.20	0.0172	0.0530	0.3059	0.0093	0.6051	0.0095	
2 Bogra	8.89	20.27	139.58	18.84	353.46	9.23E+04	0.0001	0.0002	0.0015	0.0002	0.0038	0.9942	
3 Comilla	5.27	18.67	87.79	16.77	193.48	225.76	0.0096	0.0341	0.1603	0.0306	0.3532	0.4122	
4 Dinajpur	1.38	10.21	103.99	1.73	279.12	5.80	0.0034	0.0254	0.2585	0.0043	0.6939	0.0144	
5 Faridpur	22.90	15.89	109.86	30.24	268.22	852.35	0.0176	0.0122	0.0845	0.0233	0.2064	0.6559	
6 Joydevpur	8.80	3.88	284.30	5.17	256.88	6.68	0.0156	0.0069	0.5026	0.0091	0.4541	0.0118	
7 Khuina	30.52	26.73	89.49	1.10	165.19	1109.06	0.0215	0.0188	0.0629	0.0008	0.1162	0.7799	
8 Mymensingh	11.73	16.00	79.26	50.82	676.58	1.29E+04	0.0009	0.0012	0.0058	0.0037	0.0493	0.9392	
9 Rajshahi	4.39	2.17	151.44	2.99	344.85	2.37	0.0086	0.0043	0.2980	0.0059	0.6786	0.0047	
10 Rangamati	30.69	28.63	90.53	36.50	1653.39	34.17	0.0164	0.0153	0.0483	0.0195	0.8823	0.0182	
11 Rangpur	10.78	25.27	131.53	27.39	206.64	1.07E+04	0.0010	0.0023	0.0119	0.0025	0.0187	0.9637	
12 Srimongol	16.22	53.67	98.96	40.96	429.97	21.57	0.0245	0.0811	0.1496	0.0619	0.6501	0.0326	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1363	0.2547	1.8899	0.1711	4.7117	4.8364	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B41. Determination of Best Fit Distribution
Chi-square values of Temperature(Max) Data for different probability distributions
January

Station	Scaling						Appendix B					
	Rank		3		5		2		6		4	
	1.00	2.00	97.84	1.18	106.86	13.92	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Bogra	3.41	21.17	409.50	5.41	227.61	2139.38	0.0012	0.0075	0.1459	0.0019	0.0811	0.7623
2 Chittagong	7.10	7.38	667.76	5.12	684.52	2.64	0.0052	0.0054	0.4858	0.0037	0.4980	0.0019
3 Cox's Bazar	1.61	13.59	872.62	1.87	1192.92	3.84	0.0008	0.0065	0.4182	0.0009	0.5717	0.0018
4 Dinajpur	13.02	17.03	426.18	7.05	285.61	74.92	0.0158	0.0207	0.5173	0.0086	0.3467	0.0909
5 Faridpur	9.99	12.55	565.23	13.83	546.95	138.38	0.0078	0.0098	0.4392	0.0107	0.4250	0.1075
6 Feni	0.97	11.17	628.70	1.39	684.15	6.79	0.0007	0.0084	0.4716	0.0010	0.5132	0.0051
7 Hatiya	4.82	6.69	894.49	2.94	1549.55	7.76	0.0020	0.0027	0.3627	0.0012	0.6283	0.0031
8 Ishurdi	9.75	14.97	594.97	16.57	576.29	363.60	0.0062	0.0095	0.3775	0.0105	0.3656	0.2307
9 Khepupara	3.22	3.93	780.12	2.16	1207.71	10.52	0.0016	0.0020	0.3886	0.0011	0.6016	0.0052
10 Kutubdia	8.51	1.83	651.42	12.47	960.72	10.04	0.0052	0.0011	0.3960	0.0076	0.5840	0.0061
11 Majdicourt	3.08	7.72	693.50	4.05	932.81	22.44	0.0018	0.0046	0.4169	0.0024	0.5607	0.0135
12 Madaripur	2.41	12.90	534.49	6.99	475.03	73.29	0.0022	0.0117	0.4837	0.0063	0.4299	0.0663
13 Mongla	12.16	3.00	444.42	9.24	534.10	15.69	0.0119	0.0029	0.4363	0.0091	0.5243	0.0154
14 Mymensingh	5.33	10.48	525.96	6.47	516.92	13.10	0.0049	0.0097	0.4878	0.0060	0.4794	0.0122
15 Patuakhali	2.26	12.21	752.62	0.53	969.46	9.44	0.0013	0.0070	0.4309	0.0003	0.5551	0.0054
16 Rajshahi	10.20	14.62	558.26	13.09	507.99	118.13	0.0083	0.0120	0.4567	0.0107	0.4156	0.0966
17 Rangamati	2.35	5.31	659.89	1.76	840.34	2.73	0.0016	0.0035	0.4363	0.0012	0.5556	0.0018
18 Rangpur	7.67	13.59	494.47	15.96	431.85	76.61	0.0074	0.0131	0.4754	0.0153	0.4152	0.0737
19 Shitakunda	5.91	2.55	702.81	6.12	749.11	3.15	0.0040	0.0017	0.4782	0.0042	0.5097	0.0021
20 Srimongol	2.29	11.86	558.83	0.94	522.07	2.90	0.0021	0.0108	0.5085	0.0009	0.4751	0.0026
21 Sylhet	5.77	22.55	479.61	6.06	274.43	1.64	0.0073	0.0285	0.6071	0.0077	0.3474	0.0021
22 Tangail	8.29	11.18	439.06	9.23	422.63	35.35	0.0090	0.0121	0.4743	0.0100	0.4565	0.0382
23 Teknaf	3.72	4.28	983.56	5.15	1693.72	5.00	0.0014	0.0285	0.3649	0.0019	0.6284	0.0019
24 Comilla	6.84	10.83	639.53	8.49	726.34	64.96	0.0047	0.0074	0.4389	0.0058	0.4985	0.0446
25 Dhaka	3.85	12.55	461.85	3.39	363.18	35.04	0.0044	0.0143	0.5249	0.0039	0.4128	0.0398
26 Chandpur	7.43	12.21	615.38	15.74	661.22	404.26	0.0043	0.0071	0.3586	0.0092	0.3853	0.2355
27 Jessore	2.66	11.52	567.78	2.62	561.73	31.58	0.0023	0.0098	0.4820	0.0022	0.4769	0.0268
28 Khulna	7.83	4.62	603.25	10.34	746.01	29.80	0.0056	0.0033	0.4303	0.0074	0.5322	0.0213
29 Satkhira	2.70	8.76	581.98	7.39	614.53	6.84	0.0022	0.0072	0.4762	0.0060	0.5028	0.0056
30 Barisal	7.96	3.24	656.13	8.10	917.04	21.00	0.0049	0.0020	0.4067	0.0050	0.5684	0.0130
31 Bhola	1.86	9.10	656.06	1.91	785.17	8.64	0.0013	0.0072	0.4485	0.0013	0.5368	0.0059
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1393	0.2779	13.6259	0.1640	14.8817	1.9391

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B42. Determination of Best Fit Distribution
Chi-square values of Temperature(Max) Data for different probability distributions
February

Station	Scaling						Appendix B						
	Rank	1	4	6	2	5	3	1	4	6	2	5	3
	Comparison	1.00	3.63	165.98	1.12	117.60	1.16	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Bogra	0.64	10.14	437.36	2.37	292.76	0.71	0.0009	0.0136	0.5879	0.0032	0.3935	0.0010	
2 Chittagong	12.83	9.45	464.25	11.57	351.90	7.33	0.0150	0.0110	0.5415	0.0135	0.4105	0.0085	
3 Cox's Bazar	4.51	17.72	586.25	2.32	457.23	2.27	0.0042	0.0166	0.5477	0.0022	0.4272	0.0021	
4 Dinajpur	3.26	8.76	499.23	5.52	385.48	4.15	0.0036	0.0097	0.5508	0.0061	0.4253	0.0046	
5 Faridpur	1.08	7.38	426.87	1.54	259.00	1.82	0.0015	0.0106	0.6118	0.0022	0.3712	0.0026	
6 Feni	2.82	13.59	590.29	2.54	493.00	7.27	0.0025	0.0122	0.5320	0.0023	0.4443	0.0066	
7 Hatiya	1.36	8.76	574.58	1.49	561.04	3.21	0.0012	0.0076	0.4994	0.0013	0.4877	0.0028	
8 Ishurdi	0.74	11.52	428.38	1.03	276.87	0.37	0.0010	0.0160	0.5959	0.0014	0.3851	0.0005	
9 Khepupara	1.66	5.66	471.51	2.24	364.07	4.79	0.0020	0.0067	0.5548	0.0026	0.4284	0.0056	
10 Kutubdia	2.36	5.17	563.69	10.22	689.01	4.37	0.0018	0.0041	0.4422	0.0080	0.5405	0.0034	
11 Majdicourt	0.22	11.52	484.37	0.32	360.89	1.15	0.0003	0.0134	0.5642	0.0004	0.4204	0.0013	
12 Madaripur	1.90	11.52	482.41	2.60	348.96	13.29	0.0022	0.0134	0.5605	0.0030	0.4054	0.0154	
13 Mongla	0.68	6.64	282.98	0.28	162.15	1.38	0.0015	0.0146	0.6231	0.0006	0.3571	0.0030	
14 Mymensingh	2.34	7.72	469.18	11.56	346.65	2.30	0.0028	0.0092	0.5587	0.0138	0.4128	0.0027	
15 Patuakhali	1.39	14.28	513.23	1.33	360.49	0.18	0.0016	0.0160	0.5761	0.0015	0.4046	0.0002	
16 Rajshahi	2.18	8.76	415.95	0.73	251.12	5.15	0.0032	0.0128	0.6082	0.0011	0.3672	0.0075	
17 Rangamati	8.58	11.52	442.52	8.76	292.42	3.81	0.0112	0.0150	0.5765	0.0114	0.3810	0.0050	
18 Rangpur	1.66	5.66	425.23	1.93	311.00	1.81	0.0022	0.0076	0.5690	0.0026	0.4162	0.0024	
19 Shitakunda	5.04	13.59	504.10	5.81	367.72	1.11	0.0056	0.0151	0.5617	0.0065	0.4098	0.0012	
20 Srimongol	5.57	18.76	543.83	1.00	366.32	10.09	0.0059	0.0198	0.5751	0.0011	0.3874	0.0107	
21 Sylhet	3.27	19.79	448.60	2.71	253.75	1.26	0.0045	0.0271	0.6150	0.0037	0.3479	0.0017	
22 Tangail	3.27	4.82	317.95	2.94	206.46	1.92	0.0061	0.0090	0.5917	0.0055	0.3842	0.0036	
23 Teknaf	0.57	17.38	609.84	1.22	486.90	2.70	0.0005	0.0271	0.5452	0.0011	0.4353	0.0024	
24 Comilla	0.67	7.03	494.67	1.69	419.52	1.95	0.0007	0.0076	0.5345	0.0018	0.4533	0.0021	
25 Dhaka	2.26	5.31	391.84	3.68	269.06	2.26	0.0034	0.0079	0.5810	0.0055	0.3990	0.0034	
26 Chandpur	0.95	10.14	543.65	1.07	424.08	1.49	0.0010	0.0103	0.5540	0.0011	0.4321	0.0015	
27 Jessore	2.49	12.21	467.81	2.20	182.12	1.30	0.0037	0.0183	0.7002	0.0033	0.2726	0.0019	
28 Khulna	3.59	6.69	464.47	3.09	251.19	4.59	0.0049	0.0091	0.6331	0.0042	0.3424	0.0063	
29 Satkhira	5.32	6.34	486.77	5.86	331.83	6.73	0.0063	0.0075	0.5775	0.0069	0.3937	0.0080	
30 Barisal	0.40	9.45	503.49	0.36	378.13	1.35	0.0005	0.0106	0.5637	0.0004	0.4234	0.0015	
31 Bhola	4.71	9.10	537.74	1.62	362.15	4.21	0.0051	0.0075	0.5848	0.0018	0.3938	0.0046	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1067	0.3871	17.7180	0.1199	12.5531	0.1243	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B43. Determination of Best Fit Distribution
Chi-square values of Temperature(Max) Data for different probability distributions
March

							Scaling						Appendix B
							Rank	1	3	6	2	5	4
							Comparison	1.00	1.68	114.75	1.17	97.67	3.37
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Bogra	<i>0.97</i>	10.14	559.90	<i>2.13</i>	413.72	<i>3.12</i>	0.0010	0.0102	0.5656	0.0021	0.4179	0.0032	
2 Chittagong	<i>4.90</i>	7.38	536.10	7.21	441.86	<i>1.74</i>	0.0049	0.0074	0.5365	0.0072	0.4422	0.0017	
3 Cox's Bazar	<i>4.07</i>	6.69	585.25	<i>3.55</i>	552.92	<i>2.23</i>	0.0035	0.0058	0.5068	0.0031	0.4788	0.0019	
4 Dinajpur	7.43	7.72	601.35	7.62	552.00	9.36	0.0063	0.0065	0.5073	0.0064	0.4656	0.0079	
5 Faridpur	<i>0.69</i>	7.72	478.03	<i>1.88</i>	335.15	<i>4.02</i>	0.0008	0.0093	0.5777	0.0023	0.4050	0.0049	
6 Feni	<i>1.52</i>	10.14	621.13	<i>1.32</i>	563.74	<i>5.62</i>	0.0013	0.0084	0.5161	0.0011	0.4684	0.0047	
7 Hatiya	<i>2.21</i>	17.38	923.81	<i>4.41</i>	1052.39	<i>3.21</i>	0.0011	0.0087	0.4611	0.0022	0.5253	0.0016	
8 Ishurdi	16.48	10.83	549.83	18.30	368.43	37.07	0.0165	0.0108	0.5493	0.0183	0.3681	0.0370	
9 Khepupara	<i>1.80</i>	12.21	667.43	6.51	604.40	110.02	0.0013	0.0087	0.4759	0.0046	0.4310	0.0784	
10 Kutubdia	7.24	6.42	618.83	7.23	751.67	10.47	0.0052	0.0046	0.4414	0.0052	0.5362	0.0075	
11 Majdicourt	<i>4.14</i>	9.10	636.54	<i>3.63</i>	600.21	33.90	0.0032	0.0071	0.4944	0.0028	0.4662	0.0263	
12 Madaripur	<i>1.98</i>	9.45	635.34	<i>3.63</i>	568.19	16.63	0.0016	0.0076	0.5144	0.0029	0.4600	0.0135	
13 Mongla	6.96	6.18	465.96	12.99	395.31	17.61	0.0077	0.0068	0.5149	0.0143	0.4368	0.0195	
14 Mymensingh	7.59	<i>1.86</i>	513.81	7.45	491.53	10.66	0.0073	0.0018	0.4974	0.0072	0.4759	0.0103	
15 Patuakhali	<i>2.53</i>	8.76	568.77	7.64	473.35	36.28	0.0023	0.0080	0.5183	0.0070	0.4314	0.0331	
16 Rajshahi	8.28	<i>5.66</i>	514.86	<i>5.98</i>	383.22	25.77	0.0088	0.0060	0.5455	0.0063	0.4061	0.0273	
17 Rangamati	<i>2.24</i>	10.83	517.05	<i>1.47</i>	369.50	11.96	0.0025	0.0119	0.5663	0.0016	0.4047	0.0131	
18 Rangpur	<i>2.22</i>	<i>4.62</i>	556.05	<i>4.95</i>	532.35	7.15	0.0020	0.0042	0.5021	0.0045	0.4807	0.0065	
19 Shitakunda	<i>4.05</i>	<i>2.90</i>	435.47	<i>3.81</i>	323.99	<i>3.60</i>	0.0052	0.0037	0.5628	0.0049	0.4187	0.0047	
20 Srimongol	<i>2.66</i>	7.38	506.48	6.34	410.06	<i>1.82</i>	0.0028	0.0079	0.5418	0.0068	0.4387	0.0020	
21 Sylhet	14.71	8.07	518.88	10.99	396.58	9.14	0.0153	0.0084	0.5414	0.0115	0.4138	0.0095	
22 Tangail	<i>2.91</i>	<i>5.27</i>	432.76	<i>2.55</i>	366.58	11.07	0.0035	0.0064	0.5270	0.0031	0.4464	0.0135	
23 Teknaf	<i>4.82</i>	11.52	765.46	<i>1.86</i>	811.84	8.19	0.0030	0.0084	0.4773	0.0012	0.5062	0.0051	
24 Comilla	<i>0.65</i>	7.72	593.87	<i>1.37</i>	557.18	<i>4.39</i>	0.0006	0.0066	0.5097	0.0012	0.4782	0.0038	
25 Dhaka	<i>5.25</i>	<i>4.62</i>	433.43	<i>4.70</i>	305.03	11.37	0.0069	0.0060	0.5670	0.0061	0.3990	0.0149	
26 Chandpur	7.62	19.79	835.44	<i>4.34</i>	787.20	27.16	0.0045	0.0118	0.4968	0.0026	0.4681	0.0162	
27 Jessore	<i>4.41</i>	6.69	533.91	7.21	420.12	15.27	0.0045	0.0068	0.5406	0.0073	0.4254	0.0155	
28 Khulna	<i>5.65</i>	<i>3.24</i>	471.07	7.73	347.80	18.35	0.0066	0.0038	0.5517	0.0090	0.4073	0.0215	
29 Satkhira	7.11	8.76	541.48	6.37	373.35	15.20	0.0075	0.0092	0.5686	0.0067	0.3921	0.0160	
30 Barisal	<i>4.04</i>	21.52	754.60	<i>3.86</i>	600.55	74.62	0.0028	0.0147	0.5171	0.0026	0.4116	0.0511	
31 Bhola	<i>0.95</i>	10.14	656.91	<i>3.35</i>	626.40	<i>4.83</i>	0.0007	0.0092	0.5043	0.0026	0.4809	0.0037	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1412	0.2369	16.1974	0.1648	13.7868	0.4756	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B44. Determination of Best Fit Distribution
Chi-square values of Temperature(Max) Data for different probability distributions

Rank	Scaling						Appendix B					
	1		3		6		2		5		4	
	1.00	1.00	2.19	2.19	138.56	138.56	1.05	1.05	116.01	116.01	9.56	9.56
Comparison	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1	1.23	5.31	371.16	1.43	203.27	2.80	0.0021	0.0091	0.6342	0.0024	0.3474	0.0048
2	3.23	16.69	858.37	2.11	894.78	4.97	0.0018	0.0094	0.4822	0.0012	0.5026	0.0028
3	0.50	10.14	676.99	4.02	635.10	2.06	0.0004	0.0076	0.5095	0.0030	0.4779	0.0015
4	6.14	1.86	371.77	4.52	229.78	5.19	0.0099	0.0030	0.6003	0.0073	0.3710	0.0084
5	2.79	10.48	516.66	5.03	330.39	13.75	0.0032	0.0119	0.5877	0.0057	0.3758	0.0156
6	8.85	5.66	749.23	5.39	768.44	4.66	0.0057	0.0037	0.4858	0.0035	0.4983	0.0030
7	3.08	17.72	1156.72	2.44	1527.03	11.24	0.0011	0.0065	0.4255	0.0009	0.5618	0.0041
8	4.78	7.38	405.11	4.55	218.01	4.03	0.0074	0.0115	0.6292	0.0071	0.3386	0.0063
9	4.60	11.52	817.32	4.76	861.24	7.74	0.0027	0.0067	0.4788	0.0028	0.5045	0.0045
10	3.28	6.00	819.65	5.47	1252.93	1.72	0.0016	0.0029	0.3924	0.0026	0.5998	0.0008
11	2.65	12.90	624.19	1.72	500.57	17.33	0.0023	0.0111	0.5384	0.0015	0.4318	0.0150
12	2.42	10.48	663.07	6.96	567.57	11.80	0.0019	0.0083	0.5253	0.0055	0.4496	0.0093
13	2.29	7.09	535.16	6.65	495.02	5.29	0.0022	0.0067	0.5090	0.0063	0.4708	0.0050
14	5.68	6.69	524.63	2.77	370.91	5.58	0.0062	0.0073	0.5726	0.0030	0.4048	0.0061
15	4.21	8.07	687.01	5.90	655.97	9.13	0.0031	0.0059	0.5014	0.0043	0.4787	0.0067
16	0.75	7.38	446.99	3.81	265.78	2.68	0.0010	0.0101	0.6145	0.0052	0.3654	0.0037
17	3.70	8.76	473.92	7.23	303.32	6.20	0.0046	0.0109	0.5901	0.0090	0.3777	0.0077
18	8.13	1.86	409.72	7.96	279.27	5.65	0.0114	0.0026	0.5750	0.0112	0.3919	0.0079
19	2.58	12.90	608.19	1.30	489.39	1.33	0.0023	0.0116	0.5451	0.0012	0.4386	0.0012
20	1.87	7.38	554.95	2.59	392.16	2.91	0.0019	0.0077	0.5770	0.0027	0.4077	0.0030
21	7.97	4.28	513.82	6.38	437.47	9.24	0.0081	0.0044	0.5248	0.0065	0.4468	0.0094
22	3.41	10.27	429.08	1.02	295.22	2.71	0.0046	0.0138	0.5785	0.0014	0.3980	0.0037
23	5.28	12.90	1103.69	5.79	1574.39	57.08	0.0019	0.0044	0.4000	0.0021	0.5706	0.0207
24	5.84	11.52	619.50	3.04	508.53	117.59	0.0046	0.0091	0.4893	0.0024	0.4017	0.0929
25	3.03	4.97	471.36	1.56	347.64	2.31	0.0037	0.0060	0.5673	0.0019	0.4184	0.0028
26	6.94	12.21	794.09	6.94	818.95	44.25	0.0041	0.0073	0.4717	0.0041	0.4865	0.0263
27	4.47	19.79	613.26	2.40	367.87	11.38	0.0044	0.0194	0.6017	0.0024	0.3609	0.0112
28	13.21	22.90	836.78	6.09	661.89	4250.32	0.0023	0.0040	0.1445	0.0011	0.1143	0.7339
29	3.61	13.24	625.17	7.70	460.14	57.63	0.0031	0.0113	0.5355	0.0066	0.3941	0.0494
30	5.38	14.28	857.16	7.35	875.98	45.68	0.0030	0.0079	0.4747	0.0041	0.4851	0.0253
31	5.46	8.76	850.59	5.61	1014.24	22.93	0.0029	0.0113	0.4459	0.0029	0.5317	0.0120
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1155	0.2534	16.0078	0.1219	13.4029	1.1050

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B45. Determination of Best Fit Distribution

Chi-square values of Temperature(Max) Data for different probability distributions
May

							Scaling				Appendix B		
							Rank	2	1	5	3	6	4
							Comparison	1.06	1.00	112.33	1.18	120.95	2.22
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Bogra	7.51	5.66	469.83	10.66	352.00	6.53	0.0088	0.0066	0.5513	0.0125	0.4131	0.0077	
2 Chittagong	7.53	3.24	1046.54	3.32	1547.91	13.49	0.0029	0.0012	0.3991	0.0013	0.5903	0.0051	
3 Cox's Bazar	5.91	2.21	1018.10	4.81	1497.44	5.51	0.0023	0.0009	0.4018	0.0019	0.5909	0.0022	
4 Dinajpur	3.08	8.07	466.50	2.25	289.18	1.10	0.0040	0.0105	0.6057	0.0029	0.3755	0.0014	
5 Faridpur	5.47	2.21	740.63	18.48	786.45	2.24	0.0035	0.0014	0.4761	0.0119	0.5056	0.0014	
6 Feni	12.53	8.76	992.18	15.57	1425.19	10.99	0.0051	0.0036	0.4025	0.0063	0.5781	0.0045	
7 Hatiya	9.10	7.38	1162.80	9.23	1349.34	7.07	0.0036	0.0029	0.4569	0.0036	0.5302	0.0028	
8 Ishurdi	8.38	1.17	541.78	8.07	386.83	7.52	0.0088	0.0012	0.5681	0.0085	0.4056	0.0079	
9 Khepupara	10.22	10.14	1109.15	7.98	1675.98	4.01	0.0036	0.0036	0.3937	0.0028	0.5949	0.0014	
10 Kutubdia	2.80	2.67	796.25	3.25	1178.15	2.74	0.0014	0.0013	0.4010	0.0016	0.5933	0.0014	
11 Maijdicourt	6.52	0.48	574.50	6.50	552.23	7.96	0.0057	0.0004	0.5004	0.0057	0.4810	0.0069	
12 Madaripur	6.09	4.28	966.47	4.45	1047.35	5.51	0.0030	0.0021	0.4751	0.0022	0.5149	0.0027	
13 Mongla	6.90	2.09	899.80	7.65	1200.23	4.43	0.0033	0.0010	0.4242	0.0036	0.5659	0.0021	
14 Mymensingh	8.52	8.07	568.84	7.60	497.99	11.95	0.0077	0.0073	0.5157	0.0069	0.4515	0.0108	
15 Patuakhali	2.65	3.24	762.28	1.80	863.46	4.20	0.0016	0.0020	0.4655	0.0011	0.5273	0.0026	
16 Rajshahi	2.90	4.28	562.75	3.74	407.03	3.90	0.0029	0.0043	0.5716	0.0038	0.4134	0.0040	
17 Rangamati	5.96	0.83	615.66	9.08	582.07	5.21	0.0049	0.0007	0.5051	0.0075	0.4776	0.0043	
18 Rangpur	4.59	2.55	494.82	7.45	397.85	6.74	0.0050	0.0028	0.5414	0.0081	0.4353	0.0074	
19 Shitakunda	7.68	3.24	741.34	7.63	840.48	17.01	0.0047	0.0020	0.4584	0.0047	0.5197	0.0105	
20 Srimongol	2.50	4.28	536.21	4.56	480.99	17.50	0.0024	0.0041	0.5126	0.0044	0.4598	0.0167	
21 Sylhet	13.60	13.59	568.75	13.05	418.68	63.66	0.0125	0.0124	0.5212	0.0120	0.3836	0.0583	
22 Tangail	4.51	4.82	544.14	3.16	580.64	3.23	0.0040	0.0042	0.4771	0.0028	0.5091	0.0028	
23 Teknaf	3.59	5.66	1465.24	6.16	2861.78	1.57	0.0008	0.0124	0.3373	0.0014	0.6588	0.0004	
24 Comilla	11.96	12.55	839.39	6.07	860.63	19.69	0.0068	0.0072	0.4796	0.0035	0.4917	0.0112	
25 Dhaka	16.83	0.83	662.36	19.37	603.78	13.68	0.0128	0.0006	0.5030	0.0147	0.4585	0.0104	
26 Chandpur	8.08	6.34	890.30	9.36	948.12	11.22	0.0043	0.0034	0.4752	0.0050	0.5061	0.0060	
27 Jessore	3.53	4.62	686.58	7.35	709.27	3.68	0.0025	0.0033	0.4852	0.0052	0.5012	0.0026	
28 Khulna	5.30	17.72	1054.15	5.39	1213.05	134.77	0.0022	0.0073	0.4337	0.0022	0.4991	0.0555	
29 Satkhira	9.81	18.41	1040.95	7.75	1137.85	82.91	0.0043	0.0080	0.4530	0.0034	0.4952	0.0361	
30 Barisal	2.97	7.38	980.49	1.01	1428.57	1.88	0.0012	0.0030	0.4048	0.0004	0.5898	0.0008	
31 Bhola	4.12	6.34	1003.21	3.50	1504.39	3.07	0.0016	0.0080	0.3974	0.0014	0.5959	0.0012	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1382	0.1299	14.5936	0.1532	15.7127	0.2890	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B46. Determination of Best Fit Distribution
Chi-square values of Temperature(Max) Data for different probability distributions
June

							Scaling					Appendix B	
							Rank	2	4	5	3	6	1
							Comparison	1.03	2.75	235.82	1.04	283.91	1.00
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Bogra	10.59	13.59	1114.06	10.40	1550.12	6.20	0.0039	0.0050	0.4119	0.0038	0.5731	0.0023	
2 Chittagong	2.40	17.72	914.43	0.78	944.81	5.80	0.0013	0.0094	0.4849	0.0004	0.5010	0.0031	
3 Cox's Bazar	3.85	13.59	733.63	3.85	725.47	3.37	0.0026	0.0092	0.4944	0.0026	0.4889	0.0023	
4 Dinajpur	7.11	9.10	1067.98	4.28	1647.99	3.03	0.0026	0.0033	0.3898	0.0016	0.6016	0.0011	
5 Faridpur	5.49	9.45	1012.90	3.57	1318.78	5.64	0.0023	0.0040	0.4300	0.0015	0.5598	0.0024	
6 Feni	6.21	16.34	1239.90	1.43	1751.83	6.13	0.0021	0.0054	0.4103	0.0005	0.5797	0.0020	
7 Hatiya	4.86	10.48	1123.37	4.37	1818.29	2.25	0.0016	0.0035	0.3791	0.0015	0.6135	0.0008	
8 Ishurdi	6.51	14.28	981.21	8.86	984.00	2.55	0.0033	0.0071	0.4912	0.0044	0.4926	0.0013	
9 Khepupara	3.14	10.48	1072.84	4.60	1652.67	0.95	0.0011	0.0038	0.3909	0.0017	0.6021	0.0003	
10 Kutubdia	4.23	5.58	698.66	3.90	852.97	8.26	0.0027	0.0035	0.4440	0.0025	0.5420	0.0052	
11 Majdicourt	3.16	4.97	672.50	6.38	548.31	2.37	0.0026	0.0040	0.5433	0.0052	0.4430	0.0019	
12 Madaripur	6.04	4.62	941.62	13.35	1298.57	3.89	0.0027	0.0020	0.4152	0.0059	0.5725	0.0017	
13 Mongla	1.70	7.55	691.83	2.35	871.13	0.90	0.0011	0.0048	0.4391	0.0015	0.5529	0.0006	
14 Mymensingh	6.03	8.41	1176.90	2.77	1203.89	2.73	0.0025	0.0035	0.4902	0.0012	0.5015	0.0011	
15 Patuakhali	2.88	3.93	735.99	1.10	729.37	4.10	0.0019	0.0027	0.4982	0.0007	0.4937	0.0028	
16 Rajshahi	4.17	7.38	648.24	6.32	595.05	4.09	0.0033	0.0058	0.5123	0.0050	0.4703	0.0032	
17 Rangamati	6.19	3.93	895.08	5.29	961.97	7.07	0.0033	0.0021	0.4762	0.0028	0.5118	0.0038	
18 Rangpur	2.77	5.31	1189.28	6.50	1929.66	5.38	0.0009	0.0017	0.3789	0.0021	0.6148	0.0017	
19 Shitakunda	11.54	14.62	1115.03	5.42	1405.42	9.41	0.0045	0.0057	0.4353	0.0021	0.5487	0.0037	
20 Srimongol	1.80	13.59	1281.86	2.27	2060.41	3.32	0.0005	0.0040	0.3811	0.0007	0.6126	0.0010	
21 Sythet	2.26	9.79	927.60	1.54	1182.07	3.94	0.0011	0.0046	0.4361	0.0007	0.5557	0.0019	
22 Tangail	3.03	13.00	931.58	7.33	1223.15	1.15	0.0014	0.0060	0.4275	0.0034	0.5613	0.0005	
23 Teknaf	0.63	8.07	855.15	1.48	1045.46	2.25	0.0003	0.0046	0.4470	0.0008	0.5465	0.0012	
24 Comilla	8.14	18.41	1163.51	4.70	1495.07	10.79	0.0030	0.0068	0.4308	0.0017	0.5536	0.0040	
25 Dhaka	3.92	8.76	876.62	2.04	1056.26	3.16	0.0020	0.0045	0.4494	0.0010	0.5415	0.0016	
26 Chandpur	2.76	12.21	1079.32	2.12	1467.86	6.27	0.0011	0.0047	0.4199	0.0008	0.5710	0.0024	
27 Jessore	1.66	16.69	698.92	0.61	534.34	0.83	0.0013	0.0133	0.5578	0.0005	0.4264	0.0007	
28 Khulna	1.95	12.90	894.32	2.04	1018.47	3.92	0.0010	0.0067	0.4625	0.0011	0.5267	0.0020	
29 Satkhira	0.41	13.93	843.25	1.40	866.69	2.16	0.0002	0.0081	0.4880	0.0008	0.5016	0.0012	
30 Barisal	2.99	7.38	875.66	3.50	945.55	0.74	0.0016	0.0040	0.4770	0.0019	0.5151	0.0004	
31 Bhola	2.19	9.45	922.18	2.25	1259.90	1.70	0.0010	0.0081	0.4196	0.0010	0.5733	0.0008	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0609	0.1621	13.9120	0.0613	16.7489	0.0590	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B47. Determination of Fit Distribution
Chi-square values of Temperature(Max) Data for different probability distributions
July

Station	Scaling						Appendix B							
	Rank		1		4		5		2		6		3	
	Comparison	1.00	3.38	318.12	1.01	517.02	2.32	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Bogra	1.65	11.86	1137.30	1.47	1705.88	1.76	0.0006	0.0041	0.3977	0.0005	0.5965	0.0006		
2 Chittagong	3.08	3.93	1017.24	2.28	1695.59	4.02	0.0011	0.0014	0.3731	0.0008	0.6220	0.0015		
3 Cox's Bazar	5.25	9.45	893.39	4.28	1174.36	8.49	0.0025	0.0045	0.4264	0.0020	0.5605	0.0040		
4 Dinajpur	2.16	16.69	997.44	6.03	1195.00	3.38	0.0010	0.0075	0.4492	0.0027	0.5381	0.0015		
5 Faridpur	1.23	11.86	1412.71	2.32	2705.68	23.98	0.0003	0.0029	0.3398	0.0006	0.6507	0.0058		
6 Feni	4.96	6.34	1291.11	4.74	2545.17	10.94	0.0013	0.0016	0.3342	0.0012	0.6588	0.0028		
7 Hatiya	2.10	15.66	2555.13	4.08	8466.54	7.56	0.0002	0.0014	0.2312	0.0004	0.7661	0.0007		
8 Ishurdi	2.46	10.48	1391.74	4.62	2541.09	0.87	0.0006	0.0027	0.3522	0.0012	0.6431	0.0002		
9 Khepupara	1.12	14.28	1454.82	0.91	2790.28	1.11	0.0003	0.0033	0.3413	0.0002	0.6546	0.0003		
10 Kutubdia	4.03	23.08	1256.99	3.63	1904.13	7.14	0.0013	0.0072	0.3929	0.0011	0.5952	0.0022		
11 Majdicourt	1.65	5.66	803.83	4.09	1019.73	6.98	0.0009	0.0031	0.4364	0.0022	0.5536	0.0038		
12 Madaripur	1.79	21.86	1955.30	0.79	4126.25	1.44	0.0003	0.0036	0.3202	0.0001	0.6756	0.0002		
13 Mongla	8.87	20.73	1380.81	4.92	1684.16	4.01	0.0029	0.0067	0.4449	0.0016	0.5427	0.0013		
14 Mymensingh	5.69	3.24	1311.01	11.09	2699.83	3.99	0.0014	0.0008	0.3249	0.0027	0.6691	0.0010		
15 Patuakhali	1.98	12.90	1304.00	0.67	2269.20	0.74	0.0006	0.0036	0.3633	0.0002	0.6322	0.0002		
16 Rajshahi	3.95	12.21	1348.46	2.98	2390.50	4.11	0.0011	0.0032	0.3584	0.0008	0.6354	0.0011		
17 Rangamati	5.70	19.79	1173.17	4.30	1462.97	11.11	0.0021	0.0074	0.4382	0.0016	0.5465	0.0042		
18 Rangpur	2.85	3.59	952.74	5.08	1398.29	2.64	0.0012	0.0015	0.4028	0.0021	0.5912	0.0011		
19 Shitakunda	1.70	12.90	1197.63	3.06	1801.50	3.42	0.0006	0.0043	0.3965	0.0010	0.5965	0.0011		
20 Srimongol	6.01	8.07	1099.97	4.58	1193.60	5.75	0.0026	0.0035	0.4745	0.0020	0.5149	0.0025		
21 Sylhet	7.55	7.38	812.83	4.98	1016.63	4.34	0.0041	0.0040	0.4385	0.0027	0.5484	0.0023		
22 Tangail	9.66	5.27	1140.57	6.96	1911.57	7.55	0.0031	0.0017	0.3701	0.0023	0.6203	0.0024		
23 Teknaf	7.01	8.76	1486.83	3.46	2742.83	10.60	0.0016	0.0040	0.3491	0.0008	0.6439	0.0025		
24 Comilla	3.64	16.34	1156.06	7.68	1675.56	74.72	0.0012	0.0056	0.3940	0.0026	0.5711	0.0255		
25 Dhaka	5.14	17.72	1505.22	6.56	2541.48	17.87	0.0013	0.0043	0.3677	0.0016	0.6208	0.0044		
26 Chandpur	1.95	10.83	1266.59	0.33	2234.95	6.25	0.0006	0.0031	0.3597	0.0001	0.6348	0.0018		
27 Jessore	0.50	10.14	1106.95	1.92	1604.42	2.52	0.0002	0.0037	0.4060	0.0007	0.5885	0.0009		
28 Khulna	0.71	13.93	1285.26	0.72	2106.65	1.85	0.0002	0.0041	0.3770	0.0002	0.6179	0.0005		
29 Satkhira	4.19	34.28	1692.02	3.02	2435.18	15.80	0.0010	0.0082	0.4044	0.0007	0.5820	0.0038		
30 Barisal	1.55	13.93	1465.58	1.18	2812.98	2.43	0.0004	0.0032	0.3410	0.0003	0.6545	0.0006		
31 Bhola	2.36	6.69	1447.09	0.17	3375.71	21.75	0.0005	0.0082	0.2981	0.0000	0.6955	0.0045		
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0368	0.1245	11.7039	0.0372	19.0211	0.0853		

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B48. Determination of Best Fit Distribution
Chi-square values of Temperature(Max) Data for different probability distributions
August

Station	Chi-square values						Scaling					
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Rank 1	Rank 4	Rank 5	Rank 2	Rank 6	Rank 3
	1.00	2.15	247.01	1.19	402.58	1.89	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Bogra	1.66	10.83	1035.41	7.08	1460.26	6.50	0.0007	0.0043	0.4106	0.0028	0.5791	0.0026
2 Chittagong	8.67	8.07	1275.96	6.63	2312.86	10.65	0.0024	0.0022	0.3522	0.0018	0.6384	0.0029
3 Cox's Bazar	4.12	6.34	824.36	3.11	1047.30	10.79	0.0022	0.0033	0.4348	0.0016	0.5524	0.0057
4 Dinajpur	3.20	12.55	969.07	2.42	1228.52	6.82	0.0014	0.0056	0.4360	0.0011	0.5527	0.0031
5 Faridpur	1.28	9.10	1318.91	4.33	2399.53	2.07	0.0003	0.0024	0.3531	0.0012	0.6424	0.0006
6 Feni	7.23	7.03	1227.36	9.51	2219.14	9.17	0.0021	0.0020	0.3527	0.0027	0.6378	0.0026
7 Hatiya	4.01	31.17	2223.11	3.69	4674.14	4.85	0.0006	0.0045	0.3203	0.0005	0.6734	0.0007
8 Ishurdi	13.19	5.66	1342.11	14.17	2648.97	11.25	0.0033	0.0014	0.3326	0.0035	0.6564	0.0028
9 Khepupara	1.86	7.72	1352.90	1.97	2824.26	7.96	0.0004	0.0018	0.3224	0.0005	0.6730	0.0019
10 Kutubdia	9.84	8.92	1334.79	3.53	3102.32	14.07	0.0022	0.0020	0.2984	0.0008	0.6935	0.0031
11 Majdicourt	8.44	7.38	849.78	9.52	1093.92	5.09	0.0043	0.0037	0.4305	0.0048	0.5541	0.0026
12 Madaripur	0.19	10.14	1264.67	4.39	2265.06	8.42	0.0001	0.0029	0.3560	0.0012	0.6375	0.0024
13 Mongla	3.90	8.00	1045.40	5.57	2026.42	9.61	0.0013	0.0026	0.3373	0.0018	0.6539	0.0031
14 Mymensingh	1.26	7.38	1255.82	2.29	2408.29	1.79	0.0003	0.0020	0.3415	0.0006	0.6550	0.0005
15 Patuakhali	2.00	11.52	962.93	1.75	1300.24	1.84	0.0009	0.0051	0.4223	0.0008	0.5702	0.0008
16 Rajshahi	3.09	6.00	1252.19	6.60	2340.52	8.38	0.0009	0.0017	0.3462	0.0018	0.6471	0.0023
17 Rangamati	5.29	3.93	785.27	4.67	1036.66	4.16	0.0029	0.0021	0.4268	0.0025	0.5634	0.0023
18 Rangpur	2.38	7.72	1019.01	3.33	1530.08	2.17	0.0009	0.0030	0.3973	0.0013	0.5966	0.0008
19 Shitakunda	3.04	4.97	798.45	6.42	1051.98	2.93	0.0016	0.0027	0.4275	0.0034	0.5632	0.0016
20 Srimongol	1.36	13.24	1291.12	4.44	2112.31	19.63	0.0004	0.0038	0.3751	0.0013	0.6137	0.0057
21 Sylhet	2.22	14.28	897.49	3.35	1035.71	1.81	0.0011	0.0073	0.4591	0.0017	0.5298	0.0009
22 Tangail	4.56	3.91	990.47	7.45	1829.40	6.07	0.0016	0.0014	0.3485	0.0026	0.6437	0.0021
23 Teknaf	5.53	4.28	1311.78	3.96	2540.05	9.05	0.0014	0.0073	0.3386	0.0010	0.6556	0.0023
24 Comilla	10.66	3.59	1032.33	7.85	1271.67	9.25	0.0046	0.0015	0.4420	0.0034	0.5445	0.0040
25 Dhaka	2.89	11.86	1438.63	4.44	2690.89	6.94	0.0007	0.0029	0.3462	0.0011	0.6475	0.0017
26 Chandpur	21.15	2.21	1296.47	13.70	2265.81	27.46	0.0058	0.0006	0.3575	0.0038	0.6247	0.0076
27 Jessore	2.18	6.69	1270.98	2.17	2302.64	0.92	0.0006	0.0019	0.3545	0.0006	0.6422	0.0003
28 Khulna	1.79	9.45	1075.57	2.18	1661.12	27.93	0.0006	0.0034	0.3872	0.0008	0.5979	0.0101
29 Satkhira	0.94	18.41	1177.76	0.77	1579.88	3.51	0.0003	0.0066	0.4235	0.0003	0.5680	0.0013
30 Barisal	2.31	10.83	1260.60	9.43	2255.13	12.10	0.0007	0.0030	0.3551	0.0027	0.6352	0.0034
31 Bhola	2.02	12.21	1115.28	5.64	1675.95	22.03	0.0007	0.0066	0.3937	0.0020	0.5916	0.0078
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0473	0.1018	11.6793	0.0561	19.0347	0.0894

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B49. Determination of Best Fit Distribution
Chi-square values of Temperature(Max) Data for different probability distributions
September

							Scaling						Appendix B
							Rank	1	4	5	3	6	2
							Comparison	1.00	1.18	174.93	1.15	286.06	1.09
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Bogra	9.96	3.93	998.10	11.66	1291.60	10.86	0.0043	0.0017	0.4291	0.0050	0.5553	0.0047	
2 Chittagong	4.55	12.21	1573.46	0.96	3011.30	6.48	0.0010	0.0026	0.3414	0.0002	0.6534	0.0014	
3 Cox's Bazar	4.29	6.69	1117.39	7.09	1277.20	3.34	0.0018	0.0028	0.4625	0.0029	0.5286	0.0014	
4 Dinajpur	2.79	10.83	856.96	1.08	1029.56	5.12	0.0015	0.0057	0.4495	0.0006	0.5401	0.0027	
5 Faridpur	1.76	3.93	1137.91	2.81	2049.17	4.84	0.0005	0.0012	0.3556	0.0009	0.6403	0.0015	
6 Feni	6.04	16.34	1442.85	7.35	2585.10	6.08	0.0015	0.0040	0.3551	0.0018	0.6361	0.0015	
7 Hatiya	9.80	9.45	1182.22	16.06	1901.67	9.79	0.0031	0.0030	0.3778	0.0051	0.6078	0.0031	
8 Ishurdi	6.37	3.93	1258.87	4.60	1609.46	3.79	0.0022	0.0014	0.4360	0.0016	0.5575	0.0013	
9 Khepupara	11.45	2.21	1603.62	11.15	4304.86	14.66	0.0019	0.0004	0.2696	0.0019	0.7238	0.0025	
10 Kutubdia	8.88	5.58	1345.43	6.33	3425.90	3.89	0.0019	0.0012	0.2805	0.0013	0.7143	0.0008	
11 Majdicourt	10.64	8.76	1019.03	19.03	1536.21	5.51	0.0041	0.0034	0.3921	0.0073	0.5910	0.0021	
12 Madaripur	6.27	14.97	1881.65	3.44	4244.66	14.22	0.0010	0.0024	0.3052	0.0006	0.6885	0.0023	
13 Mongla	3.75	8.45	1072.14	3.10	2022.31	4.59	0.0012	0.0027	0.3443	0.0010	0.6494	0.0015	
14 Mymensingh	2.24	4.62	792.42	10.55	1047.93	2.64	0.0012	0.0025	0.4259	0.0057	0.5633	0.0014	
15 Patuakhali	8.33	1.17	1127.57	15.23	2088.30	11.01	0.0026	0.0004	0.3468	0.0047	0.6422	0.0034	
16 Rajshahi	7.02	2.90	1035.56	5.70	1719.83	6.06	0.0025	0.0010	0.3729	0.0021	0.6193	0.0022	
17 Rangamati	4.47	1.86	1066.10	7.56	1693.78	4.88	0.0016	0.0007	0.3837	0.0027	0.6096	0.0018	
18 Rangpur	0.34	9.45	920.16	1.17	1175.64	1.59	0.0002	0.0045	0.4364	0.0006	0.5576	0.0008	
19 Shitakunda	9.24	7.72	1270.00	16.66	2088.52	4.05	0.0027	0.0023	0.3739	0.0049	0.6150	0.0012	
20 Srimongol	2.50	6.69	873.54	4.10	1190.87	6.85	0.0012	0.0032	0.4191	0.0020	0.5713	0.0033	
21 Sylhet	20.61	4.62	757.31	16.25	913.86	16.41	0.0119	0.0027	0.4380	0.0094	0.5285	0.0095	
22 Tangail	12.07	3.91	833.24	10.06	1390.16	11.96	0.0053	0.0017	0.3685	0.0044	0.6147	0.0053	
23 Teknaf	7.06	17.72	1733.01	6.49	3473.33	3.14	0.0013	0.0027	0.3307	0.0012	0.6628	0.0006	
24 Comilla	5.86	10.14	1161.49	1.97	1815.46	6.23	0.0020	0.0034	0.3870	0.0007	0.6049	0.0021	
25 Dhaka	0.43	14.28	999.73	0.64	1243.69	1.79	0.0002	0.0063	0.4422	0.0003	0.5502	0.0008	
26 Chandpur	5.23	3.93	1243.39	7.22	2442.63	8.83	0.0014	0.0011	0.3350	0.0019	0.6582	0.0024	
27 Jessore	3.09	8.76	1155.60	1.61	1925.24	2.64	0.0010	0.0028	0.3731	0.0005	0.6217	0.0009	
28 Khulna	6.03	6.69	1260.16	6.24	2280.61	7.74	0.0017	0.0019	0.3532	0.0017	0.6393	0.0022	
29 Satkhira	2.80	7.38	1284.00	4.98	2403.03	8.00	0.0008	0.0020	0.3461	0.0013	0.6477	0.0022	
30 Barisal	6.50	18.41	1526.31	4.11	2271.38	11.32	0.0017	0.0048	0.3977	0.0011	0.5918	0.0029	
31 Bhola	6.37	7.38	1505.61	6.63	3125.68	14.45	0.0014	0.0020	0.3227	0.0014	0.6699	0.0031	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0666	0.0783	11.6516	0.0768	19.0538	0.0726	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B50. Determination of Best Fit Distribution
Chi-square values of Temperature(Max) Data for different probability distributions
October

Station	Scaling						Appendix B					
	Rank 1		Rank 3		Rank 5		Rank 2		Rank 6		Rank 4	
	Normal	EV-I	Uniform	EV-I	Exponential	EV-I	Log-Normal	EV-I	Poisson	EV-I	Poisson	EV-I
1 Bogra	12.51	3.93	903.92	2.64	1237.54	21.98	0.0057	0.0018	0.4142	0.0012	0.5670	0.0101
2 Chittagong	0.78	15.66	875.91	1.03	945.86	2.87	0.0004	0.0085	0.4755	0.0006	0.5135	0.0016
3 Cox's Bazar	3.83	30.14	1074.35	1.21	1064.69	3.31	0.0018	0.0138	0.4934	0.0006	0.4889	0.0015
4 Dinajpur	18.16	19.10	1089.48	11.26	1348.68	308.58	0.0065	0.0068	0.3898	0.0040	0.4825	0.1104
5 Faridpur	8.48	13.24	1251.06	10.40	1949.63	16.88	0.0026	0.0041	0.3850	0.0032	0.5999	0.0052
6 Feni	1.18	6.69	1224.28	4.81	2348.55	2.70	0.0003	0.0019	0.3412	0.0013	0.6545	0.0008
7 Hatiya	16.73	6.69	1196.54	18.12	1949.69	14.53	0.0052	0.0021	0.3736	0.0057	0.6088	0.0045
8 Ishurdi	6.35	6.69	979.32	7.35	1413.91	17.30	0.0026	0.0028	0.4029	0.0030	0.5816	0.0071
9 Khepupara	5.06	24.97	1495.31	4.99	2290.95	1353.19	0.0010	0.0048	0.2890	0.0010	0.4427	0.2615
10 Kutubdia	0.83	14.33	781.69	3.33	896.04	12.32	0.0005	0.0084	0.4575	0.0019	0.5244	0.0072
11 Majdicourt	1.52	14.28	1108.12	3.63	1606.61	55.04	0.0005	0.0051	0.3973	0.0013	0.5760	0.0197
12 Madaripur	5.97	15.66	1354.49	7.29	2213.15	16.75	0.0017	0.0043	0.3749	0.0020	0.6125	0.0046
13 Mongla	0.86	11.18	1060.41	1.22	1889.36	2.49	0.0003	0.0038	0.3576	0.0004	0.6371	0.0008
14 Mymensingh	2.48	9.79	1052.71	2.53	1531.54	8.84	0.0010	0.0038	0.4037	0.0010	0.5873	0.0034
15 Patuakhali	10.43	22.90	1358.29	11.16	1932.99	407.61	0.0028	0.0061	0.3629	0.0030	0.5164	0.1089
16 Rajshahi	6.78	10.14	1077.83	13.36	1609.27	21.21	0.0025	0.0037	0.3936	0.0049	0.5876	0.0077
17 Rangamati	7.91	20.83	1148.95	3.71	1453.76	234.28	0.0028	0.0073	0.4004	0.0013	0.5066	0.0816
18 Rangpur	9.12	13.24	993.71	9.81	1271.09	16.49	0.0039	0.0057	0.4295	0.0042	0.5494	0.0071
19 Shitakunda	4.18	6.69	818.29	9.59	1012.17	12.12	0.0022	0.0036	0.4392	0.0051	0.5433	0.0065
20 Srimongol	3.02	20.14	1269.11	0.64	1816.76	9.62	0.0010	0.0065	0.4069	0.0002	0.5824	0.0031
21 Sylhet	0.98	11.52	914.24	4.82	1157.57	6.27	0.0005	0.0055	0.4363	0.0023	0.5524	0.0030
22 Tangail	4.34	18.45	931.44	5.44	1191.45	3.71	0.0020	0.0086	0.4323	0.0025	0.5529	0.0017
23 Teknaf	2.35	20.48	1281.60	0.59	1797.66	7.03	0.0008	0.0055	0.4121	0.0002	0.5781	0.0023
24 Comilla	2.67	4.97	1073.91	5.20	1852.18	6.07	0.0009	0.0017	0.3647	0.0018	0.6289	0.0021
25 Dhaka	3.12	2.21	846.85	4.53	1218.24	3.83	0.0015	0.0011	0.4074	0.0022	0.5860	0.0018
26 Chandpur	0.21	12.90	1236.42	5.65	2053.56	10.65	0.0001	0.0039	0.3725	0.0017	0.6187	0.0032
27 Jessore	3.41	9.10	1006.57	2.48	1307.69	6.80	0.0015	0.0039	0.4309	0.0011	0.5598	0.0029
28 Khulna	4.36	4.28	920.20	6.18	1323.32	18.40	0.0019	0.0019	0.4042	0.0027	0.5812	0.0081
29 Satkhira	2.94	13.59	1052.86	3.12	1346.45	6.51	0.0012	0.0056	0.4341	0.0013	0.5551	0.0027
30 Barisal	3.24	11.86	1214.78	3.10	1985.92	92.47	0.0010	0.0036	0.3669	0.0009	0.5997	0.0279
31 Bhola	1.82	9.10	1127.22	1.43	1846.76	12.16	0.0006	0.0056	0.3759	0.0005	0.6159	0.0041
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0571	0.1515	12.4250	0.0631	17.5916	0.7132

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B51. Determination of Best Fit Distribution

Chi-square values of Temperature(Max) Data for different probability distributions
November

							Scaling						Appendix B
							Rank	1	3	5	2	6	4
							Comparison I	1.00	3.10	255.76	1.07	382.16	7.17
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Bogra	1.95	21.17	1129.55	4.00	1491.05	3.94	0.0007	0.0080	0.4260	0.0015	0.5623	0.0015	
2 Chittagong	1.81	9.45	670.09	2.10	676.82	2.96	0.0013	0.0069	0.4915	0.0015	0.4965	0.0022	
3 Cox's Bazar	3.21	18.41	805.48	0.85	738.85	0.57	0.0020	0.0117	0.5139	0.0005	0.4714	0.0004	
4 Dinajpur	2.36	6.69	953.34	2.63	1572.61	9.65	0.0009	0.0026	0.3743	0.0010	0.6174	0.0038	
5 Faridpur	1.28	16.69	1254.54	0.40	2072.95	34.62	0.0004	0.0049	0.3711	0.0001	0.6132	0.0102	
6 Feni	0.73	10.14	1087.96	1.60	1748.71	1.83	0.0003	0.0036	0.3816	0.0006	0.6134	0.0006	
7 Hatiya	17.87	9.45	1215.31	20.01	2007.18	17.50	0.0054	0.0029	0.3697	0.0061	0.6106	0.0053	
8 Ishurdi	8.63	6.34	1528.95	8.31	3309.91	13.09	0.0018	0.0013	0.3136	0.0017	0.6789	0.0027	
9 Khepupara	3.99	14.97	1311.87	8.21	2276.99	10.10	0.0011	0.0041	0.3618	0.0023	0.6279	0.0028	
10 Kutubdia	4.71	15.58	769.45	5.08	867.58	53.45	0.0027	0.0091	0.4484	0.0030	0.5056	0.0311	
11 Majdicourt	4.71	23.59	1068.56	7.32	1276.01	64.96	0.0019	0.0096	0.4370	0.0030	0.5219	0.0266	
12 Madanipur	7.15	8.41	1225.02	12.03	2221.63	27.30	0.0020	0.0024	0.3499	0.0034	0.6345	0.0078	
13 Mongla	3.45	10.27	963.77	1.06	1679.11	29.06	0.0013	0.0038	0.3587	0.0004	0.6250	0.0108	
14 Mymensingh	2.13	8.76	1113.31	4.57	1795.39	1.42	0.0007	0.0030	0.3805	0.0016	0.6137	0.0005	
15 Patuakhali	8.29	17.38	1383.92	7.84	2406.49	93.17	0.0021	0.0044	0.3533	0.0020	0.6144	0.0238	
16 Rajshahi	0.92	7.72	1284.13	2.59	2622.85	5.09	0.0002	0.0020	0.3273	0.0007	0.6685	0.0013	
17 Rangamati	1.62	14.28	816.39	1.44	930.37	5.49	0.0009	0.0081	0.4613	0.0008	0.5258	0.0031	
18 Rangpur	1.58	9.45	1096.48	1.46	1946.44	1.92	0.0005	0.0031	0.3586	0.0005	0.6366	0.0006	
19 Shitakunda	3.13	6.69	730.17	2.28	790.19	7.47	0.0020	0.0043	0.4742	0.0015	0.5131	0.0048	
20 Srimongol	2.09	19.79	835.72	1.40	870.75	120.64	0.0011	0.0107	0.4516	0.0008	0.4706	0.0652	
21 Sylhet	1.12	6.69	1053.90	1.15	1685.33	2.74	0.0004	0.0024	0.3831	0.0004	0.6126	0.0010	
22 Tangail	3.16	22.55	1451.30	3.02	2793.05	4.43	0.0007	0.0053	0.3393	0.0007	0.6530	0.0010	
23 Teknaf	7.34	27.72	1247.42	4.87	1443.87	3.08	0.0027	0.0024	0.4562	0.0018	0.5281	0.0011	
24 Comilla	8.83	12.90	1168.06	9.00	1905.94	294.30	0.0026	0.0038	0.3436	0.0026	0.5607	0.0866	
25 Dhaka	4.58	6.34	978.03	7.09	1599.68	30.13	0.0017	0.0024	0.3725	0.0027	0.6092	0.0115	
26 Chandpur	3.27	13.24	1252.96	3.01	2213.54	84.39	0.0009	0.0037	0.3509	0.0008	0.6200	0.0236	
27 Jessore	5.14	6.34	1070.15	6.42	1787.27	12.62	0.0018	0.0022	0.3706	0.0022	0.6189	0.0044	
28 Khulna	3.30	13.59	967.97	3.30	1320.43	3.40	0.0014	0.0059	0.4187	0.0014	0.5711	0.0015	
29 Satkhira	11.20	12.90	1177.79	7.70	1937.78	11.81	0.0035	0.0041	0.3728	0.0024	0.6134	0.0037	
30 Barisal	3.75	16.00	1256.32	4.18	2057.65	5.26	0.0011	0.0048	0.3758	0.0013	0.6155	0.0016	
31 Bhola	3.31	19.79	1271.00	5.10	1868.93	2.39	0.0010	0.0041	0.4009	0.0016	0.5895	0.0008	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0477	0.1477	12.1888	0.0510	18.2131	0.3419	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B52. Determination of Best Fit Distribution
Chi-square values of Temperature(Max) Data for different probability distributions
December

Rank	Station	Scaling					EV-I	Appendix B						
		1		3		5		2		6		4		
		1.00	1.98	141.91	1.25	172.34		3.38	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1	Bogra	0.82	7.72	546.65	2.62	547.71	3.51	0.0007	0.0070	0.4929	0.0024	0.4939	0.0032	
2	Chittagong	7.60	2.55	646.29	9.52	853.90	3.89	0.0050	0.0017	0.4241	0.0062	0.5604	0.0026	
3	Cox's Bazar	6.73	17.38	890.56	4.98	1020.93	13.93	0.0034	0.0089	0.4556	0.0025	0.5223	0.0071	
4	Dinajpur	3.56	6.34	535.49	5.09	587.79	5.57	0.0031	0.0055	0.4682	0.0044	0.5139	0.0049	
5	Faridpur	18.94	10.83	741.93	19.09	889.88	65.24	0.0108	0.0062	0.4250	0.0109	0.5097	0.0374	
6	Feni	3.77	3.93	814.43	5.28	1347.12	5.32	0.0017	0.0018	0.3736	0.0024	0.6180	0.0024	
7	Hatiya	27.65	5.66	831.21	28.30	986.30	22.88	0.0145	0.0030	0.4370	0.0149	0.5186	0.0120	
8	Ishurdi	3.26	5.31	710.96	1.92	997.76	14.58	0.0019	0.0031	0.4101	0.0011	0.5755	0.0084	
9	Khepupara	3.48	13.93	937.43	2.12	1359.23	16.21	0.0015	0.0060	0.4019	0.0009	0.5828	0.0070	
10	Kutubdia	4.33	14.75	679.09	2.41	597.24	2.37	0.0033	0.0113	0.5223	0.0019	0.4593	0.0018	
11	Majdicourt	8.37	1.17	724.30	16.84	1057.93	14.54	0.0046	0.0006	0.3973	0.0092	0.5803	0.0080	
12	Madaripur	11.94	30.48	1103.11	10.15	1314.61	152.83	0.0046	0.0116	0.4205	0.0039	0.5012	0.0583	
13	Mongla	6.78	3.91	685.00	15.54	1144.54	11.46	0.0036	0.0021	0.3669	0.0083	0.6130	0.0061	
14	Mymensingh	1.34	12.90	637.05	0.66	660.47	7.92	0.0010	0.0098	0.4825	0.0005	0.5002	0.0060	
15	Patuakhali	3.50	11.52	878.09	4.70	1255.68	37.70	0.0016	0.0053	0.4007	0.0021	0.5731	0.0172	
16	Rajshahi	2.26	11.17	700.46	4.98	847.26	72.42	0.0014	0.0068	0.4275	0.0030	0.5171	0.0442	
17	Rangamati	1.43	9.10	574.17	2.01	481.87	2.42	0.0013	0.0085	0.5361	0.0019	0.4499	0.0023	
18	Rangpur	8.95	2.21	584.35	9.77	738.57	15.60	0.0066	0.0016	0.4298	0.0072	0.5433	0.0115	
19	Shitakunda	4.12	6.00	687.40	5.09	823.21	8.62	0.0027	0.0039	0.4480	0.0033	0.5365	0.0056	
20	Srimongol	0.45	14.28	478.25	4.38	340.87	1.87	0.0005	0.0170	0.5693	0.0052	0.4057	0.0022	
21	Sylhet	0.43	7.38	581.56	1.14	615.11	3.46	0.0004	0.0061	0.4810	0.0009	0.5087	0.0029	
22	Tangail	3.62	11.18	587.31	3.66	706.29	14.85	0.0027	0.0084	0.4426	0.0028	0.5323	0.0112	
23	Teknaf	2.20	10.14	953.56	2.20	1429.24	11.13	0.0009	0.0061	0.3959	0.0009	0.5934	0.0046	
24	Comilla	4.57	9.10	879.86	10.04	1364.19	20.63	0.0020	0.0040	0.3845	0.0044	0.5961	0.0090	
25	Dhaka	6.20	9.45	726.98	6.55	926.11	8.97	0.0037	0.0056	0.4316	0.0039	0.5499	0.0053	
26	Chandpur	2.41	7.38	764.30	2.42	1111.87	14.56	0.0013	0.0039	0.4016	0.0013	0.5843	0.0077	
27	Jessore	7.76	10.14	753.08	8.47	934.11	28.25	0.0045	0.0058	0.4324	0.0049	0.5363	0.0162	
28	Khulna	2.27	10.48	606.82	4.69	621.17	11.12	0.0018	0.0083	0.4829	0.0037	0.4943	0.0089	
29	Satkhira	2.39	10.83	653.39	0.89	687.58	9.63	0.0018	0.0079	0.4788	0.0007	0.5038	0.0071	
30	Barisal	2.47	9.45	829.06	3.51	1203.93	4.16	0.0012	0.0046	0.4039	0.0017	0.5865	0.0020	
31	Bhola	3.90	6.00	803.95	5.73	975.09	5.53	0.0022	0.0079	0.4466	0.0032	0.5417	0.0031	
Critical Chi Square Value (95% Confidence Level)		5.99	5.99	7.81	5.99	7.81	5.99	0.0963	0.1904	13.6712	0.1207	16.6019	0.3260	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B53. Determination of Best Fit Distribution
Chi-square values of Temperature(Max) Data for different probability distributions
Yearly Maximum Monthly of Monthly Average Maximum

Station							Scaling						
							Rank	2	3	5	1	6	Appendix B
							Comparison	1.01	2.43	208.91	1:00	243.54	4
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Bogra	5.34	11.52	747.80	2.63	588.34	2.79	0.0039	0.0085	0.5505	0.0019	0.4331	0.0021	
2 Chittagong	7.18	4.62	1202.06	10.46	2309.73	5.32	0.0020	0.0013	0.3396	0.0030	0.6526	0.0015	
3 Cox's Bazar	5.41	9.79	1040.96	3.52	1420.78	2.03	0.0022	0.0039	0.4193	0.0014	0.5723	0.0008	
4 Dinajpur	7.58	6.00	755.16	6.97	479.35	3.50	0.0060	0.0048	0.6000	0.0055	0.3809	0.0028	
5 Faridpur	3.67	14.97	783.76	0.96	692.55	2.65	0.0024	0.0100	0.5230	0.0006	0.4621	0.0018	
6 Feni	2.54	10.14	1123.60	4.26	1680.15	7.06	0.0009	0.0036	0.3973	0.0015	0.5942	0.0025	
7 Hatiya	1.22	6.69	1161.45	0.50	2012.51	4.25	0.0004	0.0021	0.3645	0.0002	0.6315	0.0013	
8 Ishurdi	2.07	5.31	448.31	1.70	276.15	6.03	0.0028	0.0072	0.6062	0.0023	0.3734	0.0081	
9 Khepupara	0.73	10.83	1012.18	2.58	1379.54	1.81	0.0003	0.0045	0.4204	0.0011	0.5730	0.0008	
10 Kutubdia	4.41	7.25	1028.32	5.76	1798.87	7.19	0.0015	0.0025	0.3606	0.0020	0.6308	0.0025	
11 Majdicourt	2.41	7.38	741.68	1.87	811.85	12.83	0.0015	0.0047	0.4700	0.0012	0.5145	0.0081	
12 Madaripur	0.96	12.55	983.77	1.34	1178.81	5.35	0.0004	0.0058	0.4507	0.0006	0.5400	0.0025	
13 Mongla	3.39	3.45	769.29	5.93	840.18	4.15	0.0021	0.0021	0.4730	0.0036	0.5166	0.0026	
14 Mymensingh	8.14	18.07	1049.51	8.21	1289.10	3.83	0.0034	0.0076	0.4416	0.0035	0.5424	0.0016	
15 Patuakhali	1.47	7.72	843.24	1.12	1023.74	5.08	0.0008	0.0041	0.4480	0.0006	0.5439	0.0027	
16 Rajshahi	3.00	11.86	625.38	2.23	462.34	1.74	0.0027	0.0107	0.5652	0.0020	0.4178	0.0016	
17 Rangamati	11.40	14.62	821.45	9.06	782.26	5.14	0.0069	0.0089	0.4997	0.0055	0.4758	0.0031	
18 Rangpur	8.54	14.28	1440.92	4.41	1419.19	5.41	0.0030	0.0049	0.4981	0.0015	0.4906	0.0019	
19 Shitakunda	2.73	9.10	896.77	2.50	1086.73	0.31	0.0014	0.0046	0.4488	0.0012	0.5439	0.0002	
20 Srimongol	3.62	14.28	1044.92	4.73	946.60	1.21	0.0018	0.0071	0.5185	0.0023	0.4697	0.0006	
21 Sylhet	2.62	5.31	1125.97	10.56	1683.52	7.03	0.0009	0.0019	0.3972	0.0037	0.5938	0.0025	
22 Tangail	4.92	2.55	481.92	3.87	439.63	3.17	0.0053	0.0027	0.5148	0.0041	0.4697	0.0034	
23 Teknaf	2.62	4.62	1606.93	3.73	3997.80	5.14	0.0005	0.0019	0.2859	0.0007	0.7112	0.0009	
24 Comilla	5.00	9.45	1200.90	6.31	1916.79	10.52	0.0016	0.0030	0.3814	0.0020	0.6087	0.0033	
25 Dhaka	7.12	4.97	704.94	5.14	648.22	5.98	0.0052	0.0036	0.5122	0.0037	0.4710	0.0043	
26 Chandpur	5.05	12.21	1198.91	11.45	1870.17	1.84	0.0016	0.0039	0.3868	0.0037	0.6034	0.0006	
27 Jessore	0.35	11.86	674.25	0.77	533.73	3.91	0.0003	0.0097	0.5505	0.0006	0.4357	0.0032	
28 Khulna	6.95	29.10	1283.48	8.08	1395.95	19870.61	0.0003	0.0013	0.0568	0.0004	0.0618	0.8795	
29 Satkhira	2.68	18.41	918.89	3.48	867.05	253.82	0.0013	0.0089	0.4451	0.0017	0.4200	0.1230	
30 Barisal	2.26	14.28	1203.64	4.19	1738.51	13.76	0.0008	0.0048	0.4044	0.0014	0.5841	0.0046	
31 Bhola	6.93	6.34	1193.10	6.02	2134.42	14.99	0.0021	0.0089	0.3549	0.0018	0.6349	0.0045	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0663	0.1595	13.6848	0.0655	15.9533	1.0787	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B54. Determination of Best Fit Distribution
Chi-square values of Temperature(Max) Data for different probability distributions
Yearly Minimum Monthly of Monthly Average Maximum

Station	Scaling						Appendix B					
	Rank		3		5		2		6		4	
	1.00	1.73	99.20	1.20	112.14	8.71	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Bogra	8.60	15.66	494.91	9.51	393.26	30.95	0.0090	0.0164	0.5194	0.0100	0.4127	0.0325
2 Chittagong	8.29	8.76	693.85	5.46	719.05	2.94	0.0058	0.0061	0.4824	0.0038	0.4999	0.0020
3 Cox's Bazar	1.28	14.28	886.02	1.32	1211.48	2.18	0.0006	0.0067	0.4186	0.0006	0.5724	0.0010
4 Dinajpur	17.73	17.38	507.89	11.09	403.39	135.03	0.0162	0.0159	0.4649	0.0101	0.3692	0.1236
5 Faridpur	8.19	11.52	546.83	11.79	530.14	106.68	0.0067	0.0095	0.4500	0.0097	0.4363	0.0878
6 Feni	1.15	11.52	701.19	6.48	851.73	12.80	0.0007	0.0073	0.4424	0.0041	0.5374	0.0081
7 Hatiya	4.99	3.93	814.80	8.00	1418.12	4.61	0.0022	0.0017	0.3614	0.0036	0.6290	0.0020
8 Ishurdi	9.74	14.97	594.97	16.53	576.25	351.98	0.0062	0.0096	0.3803	0.0106	0.3683	0.2250
9 Khepupara	4.09	6.34	842.09	2.30	1306.54	11.22	0.0019	0.0029	0.3876	0.0011	0.6014	0.0052
10 Kutubdia	8.51	1.83	651.42	12.47	960.72	10.04	0.0052	0.0011	0.3960	0.0076	0.5840	0.0061
11 Majdicourt	2.87	7.38	684.81	3.69	922.78	19.69	0.0017	0.0045	0.4173	0.0022	0.5623	0.0120
12 Madaripur	5.82	17.72	631.44	7.13	584.78	62.46	0.0044	0.0135	0.4823	0.0054	0.4466	0.0477
13 Mongla	12.23	3.00	444.42	9.29	534.01	15.66	0.0120	0.0029	0.4363	0.0091	0.5243	0.0154
14 Mymensingh	2.58	11.86	544.78	5.44	533.41	11.73	0.0023	0.0107	0.4909	0.0049	0.4806	0.0106
15 Patuakhali	2.28	12.21	752.62	0.61	969.17	8.31	0.0013	0.0070	0.4313	0.0004	0.5553	0.0048
16 Rajshahi	9.99	14.62	558.27	11.74	507.72	93.31	0.0084	0.0122	0.4669	0.0098	0.4246	0.0780
17 Rangamati	2.65	2.55	682.58	3.63	939.82	3.45	0.0016	0.0016	0.4176	0.0022	0.5749	0.0021
18 Rangpur	10.37	14.62	533.67	16.05	485.18	139.42	0.0086	0.0122	0.4450	0.0134	0.4045	0.1162
19 Shitakunda	5.77	2.55	702.81	5.39	748.76	3.19	0.0039	0.0017	0.4786	0.0037	0.5099	0.0022
20 Srimongol	1.95	7.72	543.68	1.40	579.70	1.05	0.0017	0.0068	0.4788	0.0012	0.5105	0.0009
21 Sylhet	1.27	10.83	572.84	1.27	580.05	1.16	0.0011	0.0093	0.4907	0.0011	0.4969	0.0010
22 Tangail	7.71	10.27	424.18	9.11	409.61	31.03	0.0086	0.0115	0.4756	0.0102	0.4593	0.0348
23 Teknaf	5.28	6.34	1048.17	5.39	1814.61	7.45	0.0018	0.0093	0.3630	0.0019	0.6285	0.0026
24 Comilla	6.76	10.83	639.54	8.34	725.96	75.89	0.0046	0.0074	0.4359	0.0057	0.4948	0.0517
25 Dhaka	3.17	13.93	478.57	2.21	375.91	35.91	0.0035	0.0153	0.5261	0.0024	0.4132	0.0395
26 Chandpur	7.09	11.17	597.12	15.63	643.30	363.82	0.0043	0.0068	0.3645	0.0095	0.3927	0.2221
27 Jessore	2.77	11.52	567.80	2.82	561.29	36.53	0.0023	0.0097	0.4801	0.0024	0.4746	0.0309
28 Khulna	6.52	3.93	588.15	6.50	727.46	19.59	0.0048	0.0029	0.4350	0.0048	0.5380	0.0145
29 Satkhira	2.57	8.76	581.99	7.26	614.32	7.01	0.0021	0.0072	0.4763	0.0059	0.5028	0.0057
30 Barisal	6.58	3.93	715.09	12.84	1070.09	24.13	0.0036	0.0021	0.3902	0.0070	0.5839	0.0132
31 Bhola	1.42	10.83	688.26	1.91	822.00	9.28	0.0009	0.0072	0.4488	0.0012	0.5360	0.0061
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1384	0.2391	13.7339	0.1657	15.5248	1.2052

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B55. Determination of Best Fit Distribution
Chi-square values of Temperature(Max) Data for different probability distributions
Yearly Average Monthly of Monthly Average Maximum

Station	Scaling						Appendix B					
	Rank						Comparison					
	1	4	5	2	6	3	1.00	2.51	239.03	1.30	510.71	1.51
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Bogra	52.94	116.00	2096.47	69.87	155.58	0.01	0.0213	0.0466	0.8417	0.0281	0.0625	0.0000
2 Chittagong	2.03	3.93	1089.37	2.42	1867.97	4.64	0.0007	0.0013	0.3667	0.0008	0.6289	0.0016
3 Cox's Bazar	8.09	3.93	1193.00	6.12	2099.75	5.17	0.0024	0.0012	0.3598	0.0018	0.6332	0.0016
4 Dinajpur	4.82	12.55	2070.07	8.35	6018.05	3.61	0.0006	0.0015	0.2550	0.0010	0.7414	0.0004
5 Faridpur	1.13	10.48	1773.53	0.28	4589.21	1.26	0.0002	0.0016	0.2782	0.0000	0.7198	0.0002
6 Feni	3.33	7.38	2092.13	2.10	6953.39	13.65	0.0004	0.0008	0.2306	0.0002	0.7665	0.0015
7 Hatiya	1.67	6.00	1514.32	3.19	3281.69	5.20	0.0003	0.0012	0.3147	0.0007	0.6820	0.0011
8 Ishurdi	1.99	14.97	1806.93	1.21	4204.25	39.07	0.0003	0.0025	0.2978	0.0002	0.6928	0.0064
9 Khepupara	0.53	12.21	1836.75	0.68	4594.09	7.11	0.0001	0.0019	0.2847	0.0001	0.7121	0.0011
10 Kutubdia	1.79	7.67	1395.17	3.80	3597.46	22.97	0.0004	0.0015	0.2774	0.0008	0.7154	0.0046
11 Majdicourt	2.38	12.21	1361.70	3.60	2640.03	6.57	0.0006	0.0030	0.3382	0.0009	0.6557	0.0016
12 Madaripur	0.31	7.72	2160.37	0.74	6410.70	2.27	0.0000	0.0009	0.2517	0.0001	0.7470	0.0003
13 Mongla	2.38	5.73	1416.29	3.52	3863.80	1.63	0.0004	0.0011	0.2676	0.0007	0.7299	0.0003
14 Mymensingh	2.78	6.00	1976.61	4.12	6119.59	1.75	0.0003	0.0007	0.2437	0.0005	0.7545	0.0002
15 Patuakhali	0.26	9.10	1390.61	4.25	2905.44	4.19	0.0001	0.0021	0.3224	0.0010	0.6735	0.0010
16 Rajshahi	3.03	7.38	2153.63	2.76	7170.32	5.89	0.0003	0.0008	0.2305	0.0003	0.7675	0.0006
17 Rangamati	5.77	4.97	1124.74	15.07	2116.01	4.14	0.0018	0.0015	0.3439	0.0046	0.6470	0.0013
18 Rangpur	3.30	4.62	2196.85	2.94	7524.63	1.75	0.0003	0.0005	0.2257	0.0003	0.7730	0.0002
19 Shitakunda	2.14	3.93	1002.05	2.24	1667.25	3.81	0.0008	0.0015	0.3737	0.0008	0.6218	0.0014
20 Srimongol	4.34	15.66	1797.44	2.83	3218.06	1.48	0.0009	0.0031	0.3566	0.0006	0.6385	0.0003
21 Sylhet	4.88	11.86	1463.50	6.40	2668.05	5.45	0.0012	0.0029	0.3518	0.0015	0.6413	0.0013
22 Tangail	1.61	8.00	1511.65	2.99	3916.33	0.42	0.0003	0.0015	0.2778	0.0005	0.7198	0.0001
23 Teknaf	3.41	4.62	1679.54	4.89	4826.50	6.52	0.0005	0.0029	0.2574	0.0007	0.7396	0.0010
24 Comilla	0.61	11.52	1808.17	1.97	4672.19	31.06	0.0001	0.0018	0.2771	0.0003	0.7160	0.0048
25 Dhaka	16.85	5.31	1535.40	18.78	2092.39	9.92	0.0046	0.0014	0.4174	0.0051	0.5688	0.0027
26 Chandpur	0.49	14.28	2181.89	0.94	6273.38	1.20	0.0001	0.0017	0.2575	0.0001	0.7405	0.0001
27 Jessore	2.10	23.93	2025.93	0.53	4272.50	1.99	0.0003	0.0038	0.3202	0.0001	0.6753	0.0003
28 Khulna	5.06	15.66	1851.13	1.41	4288.27	143.68	0.0008	0.0025	0.2936	0.0002	0.6801	0.0228
29 Satkhira	0.79	14.62	1386.05	1.73	2478.17	6.86	0.0002	0.0038	0.3565	0.0004	0.6374	0.0018
30 Barisal	1.09	11.52	1825.02	1.19	4724.91	6.71	0.0002	0.0018	0.2778	0.0002	0.7191	0.0010
31 Bhola	4.63	10.83	2004.00	4.55	5848.51	2.99	0.0006	0.0038	0.2545	0.0006	0.7426	0.0004
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0410	0.1030	9.8020	0.0533	20.9432	0.0619

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B56. Determination of Best Fit Distribution

Chi-square values of Temperature(Max) Data for different probability distributions
 Maximum Monthly Average Maximum Temperature of Total Pre-monsoon(Mar-May)

							Scaling						Appendix B
							Rank	2	3	5	1	6	4
							Comparison	1.08	1.89	163.35	1.00	185.44	18.18
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Bogra	79.68	7.05	926.40	42.77	1616.74	13.05	0.0297	0.0026	0.3449	0.0159	0.6020	0.0049	
2 Chittagong	3.71	1.86	1097.88	5.97	1969.14	4.72	0.0012	0.0006	0.3561	0.0019	0.6387	0.0015	
3 Cox's Bazar	4.59	10.48	1059.85	2.56	1447.24	1.29	0.0018	0.0041	0.4196	0.0010	0.5729	0.0005	
4 Dinajpur	7.84	3.93	555.35	7.01	423.65	5.26	0.0078	0.0039	0.5537	0.0070	0.4224	0.0052	
5 Faridpur	0.45	7.38	588.33	5.06	474.97	4.54	0.0004	0.0068	0.5444	0.0047	0.4395	0.0042	
6 Feni	3.09	7.38	1039.32	4.79	1502.82	8.71	0.0012	0.0029	0.4050	0.0019	0.5856	0.0034	
7 Hatiya	1.22	6.69	1161.45	0.50	2012.51	4.25	0.0004	0.0021	0.3645	0.0002	0.6315	0.0013	
8 Ishurdi	3.82	4.97	442.86	1.91	263.17	8.11	0.0053	0.0069	0.6110	0.0026	0.3631	0.0112	
9 Khepupara	0.73	10.83	1012.18	2.58	1379.54	1.81	0.0003	0.0045	0.4204	0.0011	0.5730	0.0008	
10 Kutubdia	4.25	4.33	926.05	4.21	1479.73	10.14	0.0018	0.0018	0.3813	0.0017	0.6093	0.0042	
11 Majdicourt	2.01	9.10	741.96	2.31	771.33	20.90	0.0013	0.0059	0.4794	0.0015	0.4984	0.0135	
12 Madaripur	1.14	12.55	983.77	1.41	1178.57	4.77	0.0005	0.0058	0.4508	0.0006	0.5401	0.0022	
13 Mongla	3.39	3.45	769.29	5.93	840.18	4.15	0.0021	0.0021	0.4730	0.0036	0.5166	0.0026	
14 Mymensingh	1.17	5.31	614.71	1.05	587.38	6.81	0.0010	0.0044	0.5053	0.0009	0.4829	0.0056	
15 Patuakhali	1.47	7.72	843.24	1.12	1023.74	5.08	0.0008	0.0041	0.4480	0.0006	0.5439	0.0027	
16 Rajshahi	3.64	10.83	606.45	3.72	448.63	1.21	0.0034	0.0101	0.5644	0.0035	0.4175	0.0011	
17 Rangamati	9.83	11.52	758.56	6.93	692.02	4.50	0.0066	0.0078	0.5114	0.0047	0.4665	0.0030	
18 Rangpur	3.08	3.24	604.12	7.84	582.66	8.92	0.0025	0.0027	0.4993	0.0065	0.4816	0.0074	
19 Shitakunda	2.23	7.03	844.65	2.63	974.08	0.44	0.0012	0.0038	0.4613	0.0014	0.5320	0.0002	
20 Srimongol	2.47	10.83	770.41	0.66	730.45	1.69	0.0016	0.0071	0.5080	0.0004	0.4817	0.0011	
21 Sylhet	14.45	20.14	1153.37	15.50	1427.54	51.84	0.0054	0.0075	0.4299	0.0058	0.5321	0.0193	
22 Tangail	3.76	2.55	438.50	3.77	363.03	3.57	0.0046	0.0031	0.5379	0.0046	0.4453	0.0044	
23 Teknaf	2.49	4.62	1606.93	3.59	3996.52	5.39	0.0004	0.0075	0.2860	0.0006	0.7112	0.0010	
24 Comilla	3.28	20.48	1020.68	2.98	1108.97	478.62	0.0012	0.0078	0.3874	0.0011	0.4209	0.1816	
25 Dhaka	2.19	3.93	593.08	2.05	541.69	4.13	0.0019	0.0034	0.5170	0.0018	0.4722	0.0036	
26 Chandpur	3.58	9.10	1036.16	3.98	1510.66	4.27	0.0014	0.0035	0.4035	0.0016	0.5883	0.0017	
27 Jessore	0.88	14.28	663.83	0.19	488.59	10.54	0.0007	0.0121	0.5634	0.0002	0.4147	0.0089	
28 Khulna	8.69	21.86	1015.79	8.86	1005.40	1491523.35	0.0000	0.0000	0.0007	0.0000	0.0007	0.9986	
29 Satkhira	2.75	18.41	918.89	5.28	866.97	187.53	0.0014	0.0092	0.4595	0.0026	0.4335	0.0938	
30 Barisal	3.75	11.17	984.90	3.25	1263.22	201.73	0.0015	0.0045	0.3991	0.0013	0.5118	0.0817	
31 Bhola	3.40	8.76	1099.23	6.65	1700.90	144.92	0.0011	0.0092	0.3709	0.0022	0.5739	0.0489	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0907	0.1579	13.6570	0.0836	15.5036	1.5201	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B57. Determination of Best Fit Distribution

Chi-square values of Temperature(Max) Data for different probability distributions
 Maximum Monthly Average Maximum Temperature of Total Monsoon(Jun-Oct)

Station							Scaling					Appendix B	
							Rank	3	4	5	2	6	1
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Comparison	1.57	3.50	319.24	1.42	494.13	1.00
1 Bogra	9.69	23.93	1849.64	6.02	3193.62	4.59	Normal	0.0019	0.0047	0.3636	0.0012	0.6277	0.0009
2 Chittagong	3.02	25.31	1444.96	3.49	2062.66	4.04	Uniform	0.0009	0.0071	0.4078	0.0010	0.5821	0.0011
3 Cox's Bazar	3.53	13.59	982.14	2.95	962.24	2.83	Exponential	0.0018	0.0069	0.4992	0.0015	0.4891	0.0014
4 Dinajpur	17.91	3.93	1420.31	4.60	2533.53	12.01	Log-Normal	0.0045	0.0010	0.3558	0.0012	0.6346	0.0030
5 Faridpur	3.88	10.83	1307.12	3.95	2114.86	0.93	Poisson	0.0011	0.0031	0.3798	0.0011	0.6145	0.0003
6 Feni	0.83	7.72	1546.44	4.36	3472.52	2.97	EV-I	0.0002	0.0015	0.3071	0.0009	0.6897	0.0006
7 Hatiya	7.66	6.00	1428.43	7.65	2348.36	11.00	Normal	0.0020	0.0016	0.3750	0.0020	0.6165	0.0029
8 Ishurdi	8.10	19.79	1115.72	12.35	1254.15	3.26	Uniform	0.0034	0.0082	0.4623	0.0051	0.5197	0.0014
9 Khepupara	2.59	13.24	1465.96	1.69	2819.28	0.31	Exponential	0.0006	0.0031	0.3407	0.0004	0.6552	0.0001
10 Kutubdia	4.22	14.33	1330.98	4.03	2112.06	1.54	Log-Normal	0.0012	0.0041	0.3839	0.0012	0.6092	0.0004
11 Majdicourt	3.29	6.34	909.34	3.27	1033.53	4.65	Poisson	0.0017	0.0032	0.4638	0.0017	0.5272	0.0024
12 Madaripur	5.32	6.00	1370.17	6.56	2435.08	2.12	EV-I	0.0014	0.0016	0.3582	0.0017	0.6366	0.0006
13 Mongla	6.75	7.55	974.85	6.57	1135.21	2.69	Normal	0.0032	0.0035	0.4569	0.0031	0.5321	0.0013
14 Mymensingh	1.22	18.07	1823.04	1.97	3846.01	2.14	Uniform	0.0002	0.0032	0.3203	0.0003	0.6756	0.0004
15 Patuakhali	2.74	19.79	1368.81	1.02	2101.32	0.12	Exponential	0.0008	0.0057	0.3918	0.0003	0.6014	0.0000
16 Rajshahi	21.34	22.55	1133.75	17.74	1288.15	11.29	Log-Normal	0.0086	0.0090	0.4544	0.0071	0.5163	0.0045
17 Rangamati	11.12	3.24	1238.24	10.65	2531.38	6.75	Poisson	0.0029	0.0009	0.3257	0.0028	0.6659	0.0018
18 Rangpur	10.41	22.90	2040.74	2.70	4087.06	16.97	EV-I	0.0017	0.0037	0.3302	0.0004	0.6613	0.0027
19 Shitakunda	5.64	7.03	1074.56	3.60	1773.00	2.54	Normal	0.0020	0.0025	0.3749	0.0013	0.6186	0.0009
20 Srimongol	2.40	6.34	1528.98	5.09	3521.89	2.38	Uniform	0.0005	0.0013	0.3017	0.0010	0.6951	0.0005
21 Sylhet	2.81	8.07	1125.97	4.03	1749.95	4.17	Exponential	0.0010	0.0028	0.3889	0.0014	0.6045	0.0014
22 Tangail	5.53	18.45	1250.25	3.53	1904.68	1.87	Log-Normal	0.0017	0.0058	0.3926	0.0011	0.5981	0.0006
23 Teknaf	2.77	22.21	1524.15	2.76	2499.51	1.37	Poisson	0.0007	0.0028	0.3761	0.0007	0.6167	0.0003
24 Comilla	1.73	8.76	1231.38	3.70	2174.76	3.79	EV-I	0.0005	0.0026	0.3596	0.0011	0.6351	0.0011
25 Dhaka	4.99	9.45	1170.17	5.86	1756.67	2.40	Normal	0.0017	0.0032	0.3967	0.0020	0.5956	0.0008
26 Chandpur	8.17	11.17	1559.74	4.96	2451.60	6.37	Uniform	0.0020	0.0028	0.3859	0.0012	0.6065	0.0016
27 Jessore	7.08	22.90	991.82	3.08	842.18	1.59	Exponential	0.0038	0.0123	0.5308	0.0017	0.4507	0.0009
28 Khulna	3.47	11.52	1169.05	2.75	1642.38	1.40	Log-Normal	0.0012	0.0041	0.4130	0.0010	0.5802	0.0005
29 Satkhira	4.66	17.72	1203.18	10.27	1369.42	1.71	Poisson	0.0018	0.0068	0.4615	0.0039	0.5253	0.0007
30 Barisal	15.87	32.55	1878.22	16.46	3087.98	7.90	EV-I	0.0031	0.0065	0.3727	0.0033	0.6128	0.0016
31 Bhola	6.72	17.03	1776.98	5.02	3643.58	6.71	Normal	0.0012	0.0068	0.3257	0.0009	0.6678	0.0012
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	Uniform	0.0592	0.1322	12.0567	0.0534	18.6617	0.0378

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B58. Determination of Best Fit Distribution

Chi-square values of Temperature(Max) Data for different probability distributions

Maximum Monthly Average Maximum Temperature of Total Post-Monsoon(Nov-Feb)

Station	Scaling						Appendix B					
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Rank 1	Rank 4	Rank 5	Rank 2	Rank 6	Rank 3
1 Bogra	2.40	22.36	1136.79	3.24	1498.32	6.19	0.0009	0.0084	0.4259	0.0012	0.5613	0.0023
2 Chittagong	3.02	8.43	636.67	3.65	640.51	4.62	0.0023	0.0065	0.4909	0.0028	0.4939	0.0036
3 Cox's Bazar	2.43	16.29	750.91	1.18	682.61	0.23	0.0017	0.0112	0.5166	0.0008	0.4696	0.0002
4 Dinajpur	2.15	5.93	904.01	2.66	1490.76	7.45	0.0009	0.0025	0.3746	0.0011	0.6178	0.0031
5 Faridpur	3.29	25.93	1088.86	5.36	1317.51	2.10	0.0013	0.0106	0.4457	0.0022	0.5393	0.0009
6 Feni	0.43	9.50	1043.21	1.59	1671.89	2.19	0.0002	0.0035	0.3823	0.0006	0.6127	0.0008
7 Hatiya	19.38	9.50	1186.36	21.14	1937.89	18.14	0.0061	0.0030	0.3716	0.0066	0.6070	0.0057
8 Ishurdi	4.66	20.57	1349.31	1.62	2048.58	2.13	0.0014	0.0060	0.3937	0.0005	0.5978	0.0006
9 Khepupara	5.04	23.07	1247.61	5.77	1778.80	5.80	0.0016	0.0075	0.4069	0.0019	0.5802	0.0019
10 Kutubdia	4.49	14.61	729.51	4.64	821.73	40.16	0.0028	0.0090	0.4517	0.0029	0.5088	0.0249
11 Majdicourt	3.45	17.71	925.48	5.20	1104.43	25.45	0.0017	0.0085	0.4446	0.0025	0.5305	0.0122
12 Madaripur	2.95	5.21	1000.09	5.78	1717.94	18.72	0.0011	0.0019	0.3636	0.0021	0.6245	0.0068
13 Mongla	7.94	21.14	818.67	6.13	866.93	3.79	0.0046	0.0123	0.4747	0.0036	0.5027	0.0022
14 Mymensingh	2.82	10.21	1128.80	5.69	1896.11	0.88	0.0009	0.0034	0.3708	0.0019	0.6228	0.0003
15 Patuakhali	4.47	24.50	968.21	1.60	1045.09	2.92	0.0022	0.0120	0.4730	0.0008	0.5106	0.0014
16 Rajshahi	3.03	19.14	1133.85	2.65	1596.28	0.61	0.0011	0.0069	0.4115	0.0010	0.5793	0.0002
17 Rangamati	8.42	20.57	713.93	8.32	600.66	9.79	0.0062	0.0151	0.5243	0.0061	0.4411	0.0072
18 Rangpur	1.64	8.07	1026.88	1.25	1821.30	1.76	0.0006	0.0028	0.3589	0.0004	0.6366	0.0006
19 Shitakunda	2.42	6.64	709.39	1.44	799.08	6.36	0.0016	0.0044	0.4651	0.0009	0.5239	0.0042
20 Srimongol	6.75	13.07	976.99	6.95	1411.08	2.76	0.0028	0.0054	0.4041	0.0029	0.5837	0.0011
21 Sylhet	5.28	19.86	1023.98	4.22	1096.22	2.82	0.0025	0.0092	0.4757	0.0020	0.5093	0.0013
22 Tangail	3.51	14.95	1165.52	3.24	2250.52	2.79	0.0010	0.0043	0.3388	0.0009	0.6541	0.0008
23 Teknaf	9.37	25.57	1252.11	8.23	1448.88	3.64	0.0034	0.0092	0.4557	0.0030	0.5273	0.0013
24 Comilla	10.89	13.07	1149.01	10.99	1869.89	273.40	0.0033	0.0039	0.3453	0.0033	0.5620	0.0822
25 Dhaka	2.86	15.21	990.25	2.70	1326.35	8.79	0.0012	0.0065	0.4221	0.0011	0.5653	0.0037
26 Chandpur	2.12	17.71	1173.20	3.42	1792.82	15.32	0.0007	0.0059	0.3905	0.0011	0.5967	0.0051
27 Jessore	5.05	22.36	949.51	2.63	984.37	4.63	0.0026	0.0114	0.4823	0.0013	0.5000	0.0024
28 Khulna	1.39	10.21	729.37	5.66	814.50	5.80	0.0009	0.0065	0.4655	0.0036	0.5198	0.0037
29 Satkhira	1.11	12.36	989.18	2.28	1419.13	1.70	0.0005	0.0051	0.4078	0.0009	0.5850	0.0007
30 Barisal	4.49	20.57	1190.42	5.18	1699.91	4.28	0.0015	0.0070	0.4070	0.0018	0.5812	0.0015
31 Bhola	5.90	17.71	1191.75	5.80	1792.36	3.22	0.0020	0.0051	0.3950	0.0019	0.5941	0.0011
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0613	0.2150	13.1362	0.0637	17.3390	0.1839

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B59. Determination of Best Fit Distribution
Chi-square values of Temperature(Min) Data for different probability distributions

Station							Scaling						Appendix B
							Rank	2	3	5	1	6	4
							Comparison	1.07	2.07	60.71	1.00	71.54	2.33
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Bogra	3.79	9.79	271.09	6.65	304.89	21.62	0.0061	0.0159	0.4388	0.0108	0.4935	0.0350	
2 Chittagong	2.44	22.55	428.30	4.44	464.70	62.61	0.0025	0.0229	0.4348	0.0045	0.4718	0.0636	
3 Cox's Bazar	8.10	14.62	502.56	9.90	659.15	18.22	0.0067	0.0121	0.4145	0.0082	0.5436	0.0150	
4 Dinajpur	8.10	14.62	502.56	9.90	659.15	18.22	0.0067	0.0121	0.4145	0.0082	0.5436	0.0150	
5 Faridpur	4.06	6.00	322.44	4.14	442.56	8.51	0.0052	0.0076	0.4093	0.0053	0.5618	0.0108	
6 Feni	4.83	2.90	301.62	2.54	414.48	12.79	0.0065	0.0039	0.4081	0.0034	0.5607	0.0173	
7 Hatiya	5.46	8.76	294.85	4.10	293.83	32.16	0.0085	0.0137	0.4613	0.0064	0.4597	0.0503	
8 Ishurdi	4.93	6.34	206.72	0.45	224.21	14.92	0.0108	0.0139	0.4518	0.0010	0.4900	0.0326	
9 Khepupara	10.83	6.00	391.71	15.59	549.52	22.97	0.0109	0.0060	0.3930	0.0156	0.5514	0.0230	
10 Kutubdia	24.28	8.50	478.31	26.93	785.69	25.78	0.0180	0.0063	0.3544	0.0200	0.5822	0.0191	
11 Majdicourt	2.13	7.72	317.13	3.03	382.94	5.82	0.0030	0.0107	0.4412	0.0042	0.5328	0.0081	
12 Madaripur	3.82	5.31	271.97	2.17	332.58	5.92	0.0061	0.0085	0.4374	0.0035	0.5349	0.0095	
13 Mongla	3.78	3.50	287.82	8.01	485.98	7.44	0.0048	0.0044	0.3613	0.0101	0.6101	0.0093	
14 Mymensingh	4.55	5.66	286.99	8.60	390.72	10.52	0.0064	0.0080	0.4059	0.0122	0.5526	0.0149	
15 Patuakhali	12.55	10.14	361.89	9.97	421.23	35.83	0.0147	0.0119	0.4249	0.0117	0.4946	0.0421	
16 Rajshahi	5.64	7.38	222.13	5.73	245.43	9.55	0.0114	0.0149	0.4480	0.0116	0.4949	0.0193	
17 Rangamati	11.21	8.07	230.87	5.87	188.71	6.45	0.0248	0.0179	0.5117	0.0130	0.4183	0.0143	
18 Rangpur	4.41	7.72	271.65	8.10	372.24	3.94	0.0066	0.0116	0.4066	0.0121	0.5572	0.0059	
19 Shitakunda	0.57	12.90	233.25	1.82	201.32	2.34	0.0013	0.0285	0.5158	0.0040	0.4452	0.0052	
20 Srimongol	0.98	10.48	175.65	0.29	134.16	0.24	0.0030	0.0326	0.5458	0.0009	0.4169	0.0008	
21 Sylhet	0.98	10.48	175.65	0.29	134.16	0.24	0.0030	0.0326	0.5458	0.0009	0.4169	0.0008	
22 Tangail	6.13	6.18	227.70	5.29	313.21	9.37	0.0108	0.0109	0.4010	0.0093	0.5515	0.0165	
23 Teknaf	4.35	20.48	558.19	3.03	719.75	7.34	0.0033	0.0326	0.4251	0.0023	0.5481	0.0056	
24 Comilla	4.29	7.38	289.29	3.10	378.66	6.54	0.0062	0.0107	0.4197	0.0045	0.5494	0.0095	
25 Dhaka	6.54	0.83	248.89	3.13	287.24	7.25	0.0118	0.0015	0.4494	0.0057	0.5186	0.0131	
26 Chandpur	6.32	3.59	349.89	11.22	556.64	6.26	0.0068	0.0038	0.3746	0.0120	0.5960	0.0067	
27 Jessore	5.24	20.14	288.37	5.76	256.49	9.68	0.0089	0.0344	0.4924	0.0098	0.4379	0.0165	
28 Khulna	1.34	14.28	254.66	0.80	237.78	0.53	0.0026	0.0280	0.4999	0.0016	0.4668	0.0010	
29 Satkhira	6.54	11.17	305.68	4.93	322.20	7.67	0.0099	0.0170	0.4644	0.0075	0.4895	0.0117	
30 Barisal	3.04	9.10	324.64	2.00	437.81	9.71	0.0039	0.0116	0.4129	0.0025	0.5568	0.0123	
31 Bhola	7.69	16.00	418.22	1.00	558.30	17.04	0.0076	0.0170	0.4107	0.0010	0.5483	0.0167	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.2389	0.4633	13.5752	0.2236	15.9958	0.5215	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B60. Determination of Best Fit Distribution

Chi-square values of Temperature(Min) Data for different probability distributions

February

							Scaling						Appendix B
							Rank	1	4	6	2	5	3
							Comparison	1.00	4.51	99.51	1.02	81.59	1.05
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Bogra	1.16	14.28	249.12	0.37	176.30	0.44	0.0026	0.0323	0.5641	0.0008	0.3992	0.0010	
2 Chittagong	4.17	8.76	321.82	3.50	255.90	5.34	0.0070	0.0146	0.5368	0.0058	0.4269	0.0089	
3 Cox's Bazar	8.52	15.66	583.52	7.50	728.57	10.02	0.0063	0.0116	0.4310	0.0055	0.5382	0.0074	
4 Dinajpur	8.52	15.66	583.52	7.50	728.57	10.02	0.0063	0.0116	0.4310	0.0055	0.5382	0.0074	
5 Faridpur	0.77	13.59	252.25	1.02	178.88	2.38	0.0017	0.0303	0.5619	0.0023	0.3985	0.0053	
6 Feni	1.51	9.45	315.54	1.06	303.94	3.14	0.0024	0.0149	0.4972	0.0017	0.4789	0.0050	
7 Hatiya	3.05	10.14	314.65	11.49	275.10	12.64	0.0049	0.0162	0.5018	0.0183	0.4387	0.0202	
8 Ishurdi	7.74	10.14	244.66	2.93	143.35	6.49	0.0186	0.0244	0.5891	0.0071	0.3452	0.0156	
9 Khepupara	5.31	13.59	420.67	5.11	448.03	4.51	0.0059	0.0151	0.4689	0.0057	0.4994	0.0050	
10 Kutubdia	3.50	5.58	347.41	3.44	349.32	2.05	0.0049	0.0078	0.4884	0.0048	0.4911	0.0029	
11 Maijdicourt	2.01	19.45	305.10	3.00	207.31	2.68	0.0037	0.0360	0.5655	0.0056	0.3842	0.0050	
12 Madaripur	0.81	19.79	249.37	3.69	145.34	3.18	0.0019	0.0469	0.5907	0.0087	0.3443	0.0075	
13 Mongla	4.39	10.50	327.60	0.82	382.66	1.32	0.0060	0.0144	0.4504	0.0011	0.5261	0.0018	
14 Mymensingh	3.98	17.72	289.66	3.65	180.11	0.96	0.0080	0.0357	0.5839	0.0074	0.3631	0.0019	
15 Patuakhali	1.59	11.86	397.65	0.66	420.33	2.19	0.0019	0.0142	0.4766	0.0008	0.5038	0.0026	
16 Rajshahi	2.33	13.93	242.46	0.59	170.86	4.64	0.0054	0.0320	0.5576	0.0014	0.3930	0.0107	
17 Rangamati	9.49	2.55	237.76	5.61	198.38	7.54	0.0206	0.0055	0.5154	0.0122	0.4300	0.0164	
18 Rangpur	1.03	14.28	203.51	0.47	123.34	2.43	0.0030	0.0414	0.5898	0.0014	0.3574	0.0071	
19 Shitakunda	3.48	7.03	260.44	3.80	244.91	2.20	0.0067	0.0135	0.4991	0.0073	0.4693	0.0042	
20 Srimongol	3.09	15.66	256.46	4.53	151.43	0.80	0.0072	0.0362	0.5937	0.0105	0.3506	0.0018	
21 Sylhet	3.09	15.66	256.46	4.53	151.43	0.80	0.0072	0.0362	0.5937	0.0105	0.3506	0.0018	
22 Tangail	3.27	11.18	233.86	2.76	134.85	0.69	0.0085	0.0289	0.6049	0.0071	0.3488	0.0018	
23 Teknaf	3.01	9.45	544.37	4.70	829.84	7.63	0.0022	0.0362	0.3891	0.0034	0.5932	0.0055	
24 Comilla	2.55	16.34	353.95	4.53	292.82	1.85	0.0038	0.0243	0.5267	0.0067	0.4357	0.0027	
25 Dhaka	1.29	14.28	295.23	2.18	211.31	1.28	0.0024	0.0272	0.5617	0.0041	0.4021	0.0024	
26 Chandpur	2.90	17.72	333.66	1.12	242.87	1.31	0.0048	0.0296	0.5565	0.0019	0.4051	0.0022	
27 Jessore	1.47	7.38	320.30	3.67	348.24	3.50	0.0022	0.0108	0.4679	0.0054	0.5087	0.0051	
28 Khulna	1.21	16.00	286.11	0.32	208.08	1.12	0.0024	0.0312	0.5579	0.0006	0.4057	0.0022	
29 Saikhira	0.19	9.10	262.93	2.02	212.18	4.94	0.0004	0.0185	0.5351	0.0041	0.4318	0.0101	
30 Barisal	1.36	12.21	281.74	3.27	199.52	0.58	0.0027	0.0245	0.5650	0.0066	0.4001	0.0012	
31 Bhola	2.13	19.10	371.71	2.62	333.81	0.29	0.0029	0.0185	0.5094	0.0036	0.4575	0.0004	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1644	0.7407	16.3608	0.1678	13.4151	0.1730	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B61. Determination of Best Fit Distribution
Chi-square values of Temperature(Min) Data for different probability distributions

							Scaling						Appendix B					
							Rank	3	1	6	2	5	4					
March							Comparison	1.10	1.00	56.24	1.10	50.78	1.21					
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I						
1	Bogra	4.57	3.24	383.48	7.54	396.10	2.59	0.0057	0.0041	0.4808	0.0095	0.4967	0.0032					
2	Chittagong	11.42	6.00	384.30	8.92	384.88	13.19	0.0141	0.0074	0.4752	0.0110	0.4759	0.0163					
3	Cox's Bazar	11.93	4.62	489.83	6.35	633.33	9.78	0.0103	0.0040	0.4238	0.0055	0.5479	0.0085					
4	Dinajpur	11.93	4.62	489.83	6.35	633.33	9.78	0.0103	0.0040	0.4238	0.0055	0.5479	0.0085					
5	Faridpur	7.40	1.52	341.31	8.01	350.61	4.84	0.0104	0.0021	0.4782	0.0112	0.4913	0.0068					
6	Feni	4.37	3.24	321.49	4.97	235.12	2.47	0.0076	0.0057	0.5624	0.0087	0.4113	0.0043					
7	Hatiya	5.77	7.72	484.25	8.74	500.49	10.02	0.0057	0.0076	0.4762	0.0086	0.4921	0.0099					
8	Ishurdi	7.53	3.24	310.45	3.65	252.13	4.53	0.0129	0.0056	0.5338	0.0063	0.4336	0.0078					
9	Khepupara	4.32	3.24	426.76	5.82	410.78	5.28	0.0050	0.0038	0.4984	0.0068	0.4798	0.0062					
10	Kutubdia	13.30	5.17	456.39	13.39	630.58	10.63	0.0118	0.0046	0.4041	0.0119	0.5583	0.0094					
11	Majdicourt	1.40	11.86	288.73	6.12	179.04	11.20	0.0028	0.0238	0.5794	0.0123	0.3593	0.0225					
12	Madaripur	7.56	1.86	318.06	9.71	294.51	5.44	0.0119	0.0029	0.4992	0.0152	0.4622	0.0085					
13	Mongla	16.11	9.50	489.13	15.64	540.22	15.88	0.0148	0.0087	0.4502	0.0144	0.4972	0.0146					
14	Mymensingh	7.17	7.38	392.53	7.14	344.25	3.31	0.0094	0.0097	0.5153	0.0094	0.4519	0.0043					
15	Patuakhali	3.05	6.00	410.89	5.47	381.22	5.64	0.0038	0.0074	0.5058	0.0067	0.4693	0.0069					
16	Rajshahi	6.92	4.97	324.15	1.29	320.78	3.00	0.0105	0.0075	0.4903	0.0019	0.4852	0.0045					
17	Rangamati	3.02	11.17	293.20	3.80	193.50	18.37	0.0058	0.0214	0.5605	0.0073	0.3699	0.0351					
18	Rangpur	1.21	12.21	337.58	1.63	249.91	0.49	0.0020	0.0202	0.5598	0.0027	0.4144	0.0008					
19	Shitakunda	3.66	3.24	252.09	4.02	158.28	3.50	0.0086	0.0076	0.5934	0.0095	0.3726	0.0082					
20	Srimongol	6.03	9.45	231.00	2.56	110.34	6.11	0.0165	0.0259	0.6320	0.0070	0.3019	0.0167					
21	Sylhet	6.03	9.45	231.00	2.56	110.34	6.11	0.0165	0.0259	0.6320	0.0070	0.3019	0.0167					
22	Tangail	4.15	1.18	245.72	4.01	253.09	4.42	0.0081	0.0023	0.4794	0.0078	0.4938	0.0086					
23	Teknaf	1.62	5.66	467.31	2.89	530.97	7.03	0.0016	0.0259	0.4602	0.0028	0.5229	0.0069					
24	Comilla	12.02	5.31	367.87	9.73	302.65	13.33	0.0169	0.0075	0.5175	0.0137	0.4257	0.0188					
25	Dhaka	11.61	4.62	371.09	10.97	355.68	15.90	0.0151	0.0060	0.4820	0.0143	0.4620	0.0207					
26	Chandpur	11.22	1.17	358.59	10.94	365.72	9.42	0.0148	0.0015	0.4737	0.0144	0.4831	0.0124					
27	Jessore	2.85	6.69	367.64	3.91	353.49	3.70	0.0039	0.0091	0.4980	0.0053	0.4788	0.0050					
28	Khulna	11.62	1.52	337.37	16.54	315.29	10.40	0.0168	0.0022	0.4870	0.0239	0.4551	0.0150					
29	Satkhira	4.95	3.59	351.03	10.80	326.70	3.84	0.0071	0.0051	0.5008	0.0154	0.4661	0.0055					
30	Barisal	11.20	2.55	318.68	9.48	294.90	9.72	0.0173	0.0039	0.4929	0.0147	0.4561	0.0150					
31	Bhola	6.89	0.48	352.78	11.95	340.48	6.92	0.0096	0.0051	0.4903	0.0166	0.4732	0.0096					
Critical Chi Square Value (95% Confidence Level)							5.99	5.99	7.81	5.99	7.81	5.99	0.3076	0.2784	15.6565	0.3072	14.1375	0.3375

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B62. Determination of Best Fit Distribution

Chi-square values of Temperature(Min) Data for different probability distributions

							Scaling						
							Rank	1	3	6	2	5	4
April							Comparison	1.00	4.64	171.07	1.53	165.68	38.45
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Bogra	3.23	13.93	527.60	2.89	494.25	3.44	0.0031	0.0133	0.5047	0.0028	0.4728	0.0033	
2 Chittagong	5.83	6.69	528.45	9.62	544.60	12.61	0.0053	0.0060	0.4770	0.0087	0.4916	0.0114	
3 Cox's Bazar	6.71	10.48	680.55	12.50	858.93	44.35	0.0042	0.0065	0.4218	0.0077	0.5323	0.0275	
4 Dinajpur	6.71	10.48	680.55	12.50	858.93	44.35	0.0042	0.0065	0.4218	0.0077	0.5323	0.0275	
5 Faridpur	6.37	12.90	566.14	6.49	565.06	14.12	0.0054	0.0110	0.4834	0.0055	0.4825	0.0121	
6 Feni	1.49	14.28	554.27	3.83	541.04	4.21	0.0013	0.0128	0.4953	0.0034	0.4835	0.0038	
7 Hatiya	3.28	15.66	812.41	2.47	860.68	1.04	0.0019	0.0092	0.4791	0.0015	0.5076	0.0006	
8 Ishurdi	1.43	12.90	408.07	0.77	299.66	5.22	0.0020	0.0177	0.5605	0.0011	0.4116	0.0072	
9 Khepupara	4.61	22.55	686.73	8.68	643.76	1300.15	0.0017	0.0085	0.2575	0.0033	0.2414	0.4876	
10 Kutubdia	1.68	10.58	460.01	2.85	451.93	162.23	0.0015	0.0097	0.4223	0.0026	0.4149	0.1489	
11 Majdicourt	2.88	11.86	554.16	3.64	564.92	19.08	0.0025	0.0103	0.4792	0.0032	0.4885	0.0165	
12 Madaripur	5.18	11.86	529.46	3.07	502.45	18.02	0.0048	0.0111	0.4948	0.0029	0.4696	0.0168	
13 Mongla	2.46	12.00	486.51	4.76	526.37	96.87	0.0022	0.0106	0.4309	0.0042	0.4662	0.0858	
14 Mymensingh	1.06	12.21	523.20	2.26	524.06	3.58	0.0010	0.0114	0.4906	0.0021	0.4914	0.0034	
15 Patuakhali	10.82	31.52	789.76	10.92	739.80	1384231.13	0.0000	0.0000	0.0006	0.0000	0.0005	0.9989	
16 Rajshahi	5.45	19.79	515.27	5.25	415.77	4.70	0.0056	0.0205	0.5333	0.0054	0.4303	0.0049	
17 Rangamati	2.06	11.86	394.62	5.69	288.04	11.27	0.0029	0.0166	0.5530	0.0080	0.4037	0.0158	
18 Rangpur	9.40	23.24	677.12	10.16	681.77	12.21	0.0066	0.0164	0.4789	0.0072	0.4822	0.0086	
19 Shitakunda	1.67	5.66	437.57	2.45	428.34	5.66	0.0019	0.0064	0.4965	0.0028	0.4860	0.0064	
20 Srimongol	3.56	31.17	602.77	4.63	497.73	4.57	0.0031	0.0272	0.5267	0.0040	0.4349	0.0040	
21 Sylhet	3.56	31.17	602.77	4.63	497.73	4.57	0.0031	0.0272	0.5267	0.0040	0.4349	0.0040	
22 Tangail	0.62	11.64	378.16	0.53	342.72	0.44	0.0008	0.0159	0.5151	0.0007	0.4669	0.0006	
23 Teknaf	5.54	10.83	682.82	3.18	845.64	23.61	0.0035	0.0272	0.4345	0.0020	0.5381	0.0150	
24 Comilla	0.70	13.59	464.02	6.89	397.93	39.04	0.0008	0.0147	0.5032	0.0075	0.4315	0.0423	
25 Dhaka	3.29	11.17	476.08	9.46	425.64	6.50	0.0035	0.0120	0.5107	0.0101	0.4566	0.0070	
26 Chandpur	2.04	12.90	545.49	1.38	535.55	10.48	0.0018	0.0116	0.4924	0.0012	0.4834	0.0095	
27 Jessore	1.96	13.59	605.67	9.31	653.01	18.06	0.0015	0.0104	0.4653	0.0071	0.5017	0.0139	
28 Khulna	0.45	13.59	539.43	0.91	507.93	8.78	0.0004	0.0127	0.5036	0.0008	0.4742	0.0082	
29 Satkhira	5.89	15.66	533.12	11.24	456.10	27202.74	0.0002	0.0006	0.0189	0.0004	0.0162	0.9638	
30 Barisal	3.55	13.59	532.06	5.35	500.95	142.50	0.0030	0.0113	0.4441	0.0045	0.4182	0.1189	
31 Bhola	1.49	12.90	610.38	2.08	664.81	60.35	0.0011	0.0006	0.4515	0.0015	0.4917	0.0446	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0811	0.3762	13.8740	0.1241	13.4373	3.1187	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B63. Determination of Best Fit Distribution
Chi-square values of Temperature(Min) Data for different probability distributions

May	Station	Scaling					EV-I	Appendix B							
		Rank	1	3	5	2		6	4	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
		Comparison	1.00	2.31	171.42	1.12		211.56	14.06						
1	Bogra	0.89	5.66	616.03	3.89	788.97	2.02	0.0006	0.0040	0.4346	0.0027	0.5566	0.0014		
2	Chittagong	0.53	11.52	675.11	1.06	743.56	1.12	0.0004	0.0080	0.4711	0.0007	0.5189	0.0008		
3	Cox's Bazar	2.53	10.14	746.88	2.96	954.11	8.89	0.0015	0.0059	0.4328	0.0017	0.5529	0.0052		
4	Dinajpur	2.53	10.14	746.88	2.96	954.11	8.89	0.0015	0.0059	0.4328	0.0017	0.5529	0.0052		
5	Faridpur	3.54	16.00	671.03	4.04	719.13	20.42	0.0025	0.0112	0.4679	0.0028	0.5014	0.0142		
6	Feni	1.68	16.69	712.93	0.87	812.50	5.24	0.0011	0.0108	0.4600	0.0006	0.5242	0.0034		
7	Hatiya	1.60	15.66	855.53	2.48	1159.24	73.91	0.0008	0.0074	0.4058	0.0012	0.5498	0.0351		
8	Ishurdi	2.52	13.59	657.89	1.99	714.02	4.94	0.0018	0.0097	0.4716	0.0014	0.5119	0.0035		
9	Khepupara	4.33	8.41	686.12	2.75	823.06	11.67	0.0028	0.0055	0.4466	0.0018	0.5357	0.0076		
10	Kutubdia	3.41	5.58	502.97	3.36	596.36	13.02	0.0030	0.0050	0.4472	0.0030	0.5302	0.0116		
11	Majdicourt	5.93	7.72	774.61	2.74	1028.89	3.06	0.0033	0.0042	0.4249	0.0015	0.5644	0.0017		
12	Madaripur	1.88	7.72	599.78	2.03	722.46	3.65	0.0014	0.0058	0.4484	0.0015	0.5401	0.0027		
13	Mongla	2.45	4.00	674.93	2.68	1203.15	4.50	0.0013	0.0021	0.3568	0.0014	0.6360	0.0024		
14	Mymensingh	7.37	23.24	599.08	12.21	525.85	10263.02	0.0006	0.0020	0.0524	0.0011	0.0460	0.8978		
15	Patuakhali	11.20	17.03	1282.08	8.06	2064.11	11.65	0.0033	0.0050	0.3777	0.0024	0.6081	0.0034		
16	Rajshahi	1.66	9.45	587.58	3.51	580.51	4.48	0.0014	0.0080	0.4949	0.0030	0.4890	0.0038		
17	Rangamati	1.30	9.10	495.17	2.13	483.71	12.31	0.0013	0.0091	0.4933	0.0021	0.4819	0.0123		
18	Rangpur	2.55	6.34	572.20	1.88	691.87	3.84	0.0020	0.0050	0.4475	0.0015	0.5411	0.0030		
19	Shitakunda	2.54	16.34	798.92	2.98	900.95	1.71	0.0015	0.0095	0.4636	0.0017	0.5228	0.0010		
20	Srimongol	7.71	9.45	701.88	10.45	874.48	10.11	0.0048	0.0059	0.4348	0.0065	0.5418	0.0063		
21	Sylhet	7.71	9.45	701.88	10.45	874.48	10.11	0.0048	0.0059	0.4348	0.0065	0.5418	0.0063		
22	Tangail	4.96	5.27	554.59	7.87	812.65	2.86	0.0036	0.0038	0.3995	0.0057	0.5854	0.0021		
23	Teknaf	1.25	6.69	895.77	2.36	1438.23	2.46	0.0005	0.0059	0.3817	0.0010	0.6129	0.0011		
24	Comilla	6.95	1.52	721.75	11.00	1202.10	11.19	0.0036	0.0008	0.3693	0.0056	0.6150	0.0057		
25	Dhaka	4.77	2.55	538.94	2.60	674.12	6.33	0.0039	0.0021	0.4384	0.0021	0.5484	0.0051		
26	Chandpur	3.25	11.17	709.73	3.49	909.89	29.57	0.0019	0.0067	0.4257	0.0021	0.5458	0.0177		
27	Jessore	6.64	16.34	916.08	3.58	955.03	8.41	0.0035	0.0086	0.4806	0.0019	0.5010	0.0044		
28	Khulna	7.17	9.45	781.63	4.64	1098.71	10.17	0.0037	0.0049	0.4089	0.0024	0.5747	0.0053		
29	Satkhira	10.68	3.59	700.06	12.10	666.88	10.00	0.0076	0.0026	0.4989	0.0086	0.4752	0.0071		
30	Barisal	8.24	7.38	763.34	12.31	674.58	6.67	0.0056	0.0050	0.5184	0.0084	0.4581	0.0045		
31	Bhola	3.06	3.93	704.92	3.27	970.34	6.45	0.0018	0.0026	0.4166	0.0019	0.5735	0.0038		
Critical Chi Square Value (95% Confidence Level)		5.99	5.99	7.81	5.99	7.81	5.99	0.0772	0.1785	13.2378	0.0865	16.3378	1.0854		

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B64. Determination of Best Fit Distribution
Chi-square values of Temperature(Min) Data for different probability distributions
June

							Scaling						Appendix B	
							Rank	2	3	5	1	6	4	
							Comparison	1.13	4.95	311.71	1.00	482.38	47.65	
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I		
1 Bogra	1.69	11.17	1228.64	2.99	1947.36	0.66	0.0005	0.0035	0.3849	0.0009	0.6100	0.0002		
2 Chittagong	4.80	12.55	1055.72	6.46	1640.57	3.36	0.0018	0.0046	0.3876	0.0024	0.6024	0.0012		
3 Cox's Bazar	3.17	21.17	1035.92	1.12	1487.25	6.85	0.0012	0.0083	0.4054	0.0004	0.5820	0.0027		
4 Dinajpur	3.17	21.17	1035.92	1.12	1487.25	6.85	0.0012	0.0083	0.4054	0.0004	0.5820	0.0027		
5 Faridpur	1.22	11.86	902.94	4.07	1366.80	2.28	0.0005	0.0052	0.3944	0.0018	0.5971	0.0010		
6 Feni	6.58	32.55	1478.48	6.92	2426.02	21.15	0.0017	0.0082	0.3723	0.0017	0.6108	0.0053		
7 Hatiya	8.99	14.97	1482.27	6.21	2656.91	3.54	0.0022	0.0036	0.3552	0.0015	0.6367	0.0008		
8 Ishurdi	13.25	27.72	1487.74	6.10	2391.19	3.12	0.0034	0.0071	0.3786	0.0016	0.6086	0.0008		
9 Khepupara	4.34	30.83	1021.92	2.44	1172.68	61.78	0.0019	0.0134	0.4455	0.0011	0.5112	0.0269		
10 Kutubdia	2.54	11.83	558.15	5.63	609.71	86.25	0.0020	0.0093	0.4381	0.0044	0.4785	0.0677		
11 Majdicourt	4.63	26.69	1170.55	3.80	1698.44	1.41	0.0016	0.0092	0.4029	0.0013	0.5846	0.0005		
12 Madaripur	0.67	13.59	1105.50	1.63	1871.00	1.70	0.0002	0.0045	0.3692	0.0005	0.6249	0.0006		
13 Mongla	3.39	9.00	912.08	4.13	932.88	1.78	0.0018	0.0048	0.4895	0.0022	0.5007	0.0010		
14 Mymensingh	2.92	19.10	1071.70	11.50	1659.61	4475.44	0.0004	0.0026	0.1480	0.0016	0.2292	0.6181		
15 Patuakhali	3.18	18.41	1247.18	0.79	2050.91	0.64	0.0010	0.0055	0.3755	0.0002	0.6175	0.0002		
16 Rajshahi	9.12	22.21	1334.93	5.35	1915.09	2.74	0.0028	0.0068	0.4058	0.0016	0.5822	0.0008		
17 Rangamati	6.44	28.07	882.61	8.02	954.41	43814.32	0.0001	0.0006	0.0193	0.0002	0.0209	0.9589		
18 Rangpur	4.74	1.86	1277.96	3.50	3044.99	5.49	0.0011	0.0004	0.2946	0.0008	0.7018	0.0013		
19 Shitakunda	2.14	6.34	1174.12	1.30	2571.96	3.65	0.0006	0.0017	0.3123	0.0003	0.6841	0.0010		
20 Srimongol	4.69	23.59	1433.71	5.80	2749.07	6.05	0.0011	0.0056	0.3395	0.0014	0.6510	0.0014		
21 Sylhet	4.69	23.59	1433.71	5.80	2749.07	6.05	0.0011	0.0056	0.3395	0.0014	0.6510	0.0014		
22 Tangail	4.05	15.27	1046.03	3.10	1852.69	1.12	0.0014	0.0052	0.3580	0.0011	0.6340	0.0004		
23 Teknaf	1.11	14.28	947.43	0.59	1391.44	0.10	0.0005	0.0056	0.4023	0.0003	0.5909	0.0000		
24 Comilla	1.72	17.72	1420.96	0.39	3006.83	6.81	0.0004	0.0040	0.3190	0.0001	0.6750	0.0015		
25 Dhaka	3.04	17.38	988.34	1.52	1310.98	3.57	0.0013	0.0075	0.4251	0.0007	0.5639	0.0015		
26 Chandpur	8.42	50.83	1366.22	8.84	1564.58	120.78	0.0027	0.0163	0.4379	0.0028	0.5015	0.0387		
27 Jessore	3.03	15.66	1268.10	2.00	2030.78	2.19	0.0009	0.0047	0.3818	0.0006	0.6114	0.0007		
28 Khulna	6.95	15.66	1170.76	3.09	1836.33	2.71	0.0023	0.0052	0.3857	0.0010	0.6050	0.0009		
29 Satkhira	0.44	14.28	1146.34	1.18	1994.33	2.59	0.0001	0.0045	0.3629	0.0004	0.6313	0.0008		
30 Barisal	2.71	14.97	1344.66	0.70	2009.91	0.33	0.0008	0.0044	0.3986	0.0002	0.5958	0.0001		
31 Bhola	8.24	11.52	1378.60	4.93	1660.86	2.91	0.0027	0.0045	0.4495	0.0016	0.5415	0.0009		
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0412	0.1807	11.3843	0.0365	17.6174	1.7401		

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B65. Determination of Best Fit Distribution

Chi-square values of Temperature(Min) Data for different probability distributions July

							Scaling						Appendix B
							Rank	1	3	5	2	6	4
							Comparison	1.00	2.19	280.29	1.25	713.33	250.43
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Bogra	6.26	8.41	1617.47	6.30	4397.91	6.33	0.0010	0.0014	0.2677	0.0010	0.7278	0.0010	
2 Chittagong	6.92	7.38	1517.84	8.63	4265.25	13.95	0.0012	0.0013	0.2608	0.0015	0.7329	0.0024	
3 Cox's Bazar	3.73	13.24	1766.51	8.15	4973.76	11.13	0.0006	0.0020	0.2607	0.0012	0.7340	0.0016	
4 Dinajpur	3.73	13.24	1766.51	8.15	4973.76	11.13	0.0006	0.0020	0.2607	0.0012	0.7340	0.0016	
5 Faridpur	6.63	16.69	1302.34	2.08	2487.42	171.30	0.0017	0.0042	0.3267	0.0005	0.6240	0.0430	
6 Feni	28.84	15.66	1877.24	29.41	5446.14	29.30	0.0039	0.0021	0.2528	0.0040	0.7333	0.0039	
7 Hatiya	32.88	51.52	1826.13	37.97	2798.65	1.45E+11	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
8 Ishurdi	5.34	11.86	1563.34	2.89	3908.16	17.27	0.0010	0.0022	0.2838	0.0005	0.7094	0.0031	
9 Khepupara	12.12	30.14	1348.75	18.49	2076.89	8.38E+06	0.0000	0.0000	0.0002	0.0000	0.0002	0.9996	
10 Kutubdia	5.14	11.42	987.44	5.40	1876.90	55.81	0.0017	0.0039	0.3356	0.0018	0.6379	0.0190	
11 Majdicourt	4.39	25.66	1552.91	3.65	2991.02	830.37	0.0008	0.0047	0.2872	0.0007	0.5531	0.1535	
12 Madaripur	1.67	13.24	1314.22	3.20	2748.65	10.92	0.0004	0.0032	0.3212	0.0008	0.6717	0.0027	
13 Mongla	2.84	11.00	1544.40	6.44	5125.25	0.25	0.0004	0.0016	0.2308	0.0010	0.7661	0.0000	
14 Mymensingh	6.79	26.00	1464.46	5.96	2596.52	41350.25	0.0001	0.0006	0.0322	0.0001	0.0571	0.9098	
15 Patuakhali	3.76	16.00	1941.53	4.37	5582.25	70.33	0.0005	0.0021	0.2549	0.0006	0.7327	0.0092	
16 Rajshahi	12.50	3.59	1397.14	14.43	3585.47	16.36	0.0025	0.0007	0.2778	0.0029	0.7129	0.0033	
17 Rangamati	4.25	23.24	1226.16	4.16	2017.06	96.38	0.0013	0.0069	0.3637	0.0012	0.5983	0.0286	
18 Rangpur	2.41	4.62	1439.38	6.26	3892.80	7.64	0.0004	0.0009	0.2689	0.0012	0.7272	0.0014	
19 Shitakunda	0.44	9.45	1846.44	1.02	6067.64	9.99	0.0001	0.0012	0.2327	0.0001	0.7647	0.0013	
20 Srimongol	1.98	7.03	1494.94	7.07	4303.69	23.09	0.0003	0.0012	0.2561	0.0012	0.7372	0.0040	
21 Sylhet	1.98	7.03	1494.94	7.07	4303.69	23.09	0.0003	0.0012	0.2561	0.0012	0.7372	0.0040	
22 Tangail	0.86	6.18	1389.85	1.70	4506.52	1.83	0.0001	0.0010	0.2353	0.0003	0.7629	0.0003	
23 Teknaf	10.43	16.00	1503.68	11.15	3381.09	122.52	0.0021	0.0012	0.2981	0.0022	0.6702	0.0243	
24 Comilla	2.00	17.03	2233.96	13.51	7190.14	9.33	0.0002	0.0018	0.2360	0.0014	0.7596	0.0010	
25 Dhaka	3.36	4.62	1288.48	4.44	3297.20	15.67	0.0007	0.0010	0.2793	0.0010	0.7146	0.0034	
26 Chandpur	45.03	41.17	1416.27	49.08	1913.15	2.60E+13	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
27 Jessore	16.56	45.31	1986.46	28.23	3526.80	3.85E+06	0.0000	0.0000	0.0005	0.0000	0.0009	0.9985	
28 Khulna	1.42	15.31	1388.53	2.97	2906.79	10.72	0.0003	0.0035	0.3210	0.0007	0.6720	0.0025	
29 Satkhira	10.81	36.34	1505.96	9.52	2327.17	442303.04	0.0000	0.0001	0.0034	0.0000	0.0052	0.9913	
30 Barisal	11.06	13.59	1602.59	11.97	3911.83	13.50	0.0020	0.0024	0.2880	0.0022	0.7030	0.0024	
31 Bhola	3.13	8.41	1595.44	3.78	4359.93	3.60	0.0005	0.0001	0.2671	0.0006	0.7298	0.0006	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0248	0.0545	6.9589	0.0311	17.7100	6.2174	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B66. Determination of Best Fit Distribution
Chi-square values of Temperature(Min) Data for different probability distributions
August

Station	Rank						Scaling						Appendix B
	Comparison						1	3	4	2	6	5	
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	1.00	3.55	395.82	1.56	1061.44	459.69	
1 Bogra	1.15	16.34	2278.08	1.43	7356.85	2.10	0.0001	0.0017	0.2359	0.0001	0.7619	0.0002	
2 Chittagong	1.93	19.10	1465.12	0.53	3007.43	4.29	0.0004	0.0042	0.3257	0.0001	0.6686	0.0010	
3 Cox's Bazar	3.33	14.28	1815.72	11.34	5276.94	253.83	0.0005	0.0019	0.2462	0.0015	0.7155	0.0344	
4 Dinajpur	3.33	14.28	1815.72	11.34	5276.94	253.83	0.0005	0.0019	0.2462	0.0015	0.7155	0.0344	
5 Faridpur	7.45	19.79	1303.58	7.75	2314.30	8611.62	0.0006	0.0016	0.1063	0.0006	0.1887	0.7022	
6 Feni	6.07	18.76	1456.21	14.93	3033.88	217.75	0.0013	0.0040	0.3067	0.0031	0.6390	0.0459	
7 Hatiya	0.95	14.28	1317.19	6.59	2796.72	71.62	0.0002	0.0034	0.3131	0.0016	0.6647	0.0170	
8 Ishurdi	0.12	13.93	1649.83	2.68	4274.75	6.48	0.0000	0.0023	0.2774	0.0005	0.7187	0.0011	
9 Khepupara	4.64	23.24	1382.03	8.25	2453.57	1309.20	0.0009	0.0045	0.2668	0.0016	0.4736	0.2527	
10 Kutubdia	9.19	18.92	1835.40	9.55	5295.59	5186.22	0.0007	0.0015	0.1486	0.0008	0.4286	0.4198	
11 Majdicourt	4.89	24.97	1536.81	8.98	2959.66	1142.62	0.0009	0.0044	0.2707	0.0016	0.5213	0.2012	
12 Madaripur	2.27	13.93	1137.12	1.85	2031.03	2255.70	0.0004	0.0026	0.2090	0.0003	0.3732	0.4145	
13 Mongla	2.32	13.50	1685.08	2.39	5582.48	1.32	0.0003	0.0019	0.2312	0.0003	0.7661	0.0002	
14 Mymensingh	64.02	65.31	2365.19	96.24	3892.34	5.25E+15	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
15 Patuakhali	1.13	16.34	1963.04	1.24	5659.42	0.62	0.0001	0.0021	0.2569	0.0002	0.7406	0.0001	
16 Rajshahi	8.97	2.90	1363.30	6.63	3281.61	10.53	0.0019	0.0006	0.2917	0.0014	0.7021	0.0023	
17 Rangamati	22.38	35.66	1522.10	43.53	2507.12	1.65E+09	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
18 Rangpur	7.47	18.41	2073.82	7.67	5522.13	9.69	0.0010	0.0024	0.2715	0.0010	0.7229	0.0013	
19 Shitakunda	1.63	20.48	2394.77	0.79	7934.84	63.04	0.0002	0.0020	0.2299	0.0001	0.7618	0.0061	
20 Srimongol	3.05	18.41	2288.82	6.83	7590.66	260.90	0.0003	0.0018	0.2251	0.0007	0.7465	0.0257	
21 Sylhet	3.05	18.41	2288.82	6.83	7590.66	260.90	0.0003	0.0018	0.2251	0.0007	0.7465	0.0257	
22 Tangail	7.83	2.09	1834.02	5.48	8984.62	6.64	0.0007	0.0002	0.1692	0.0005	0.8288	0.0006	
23 Teknaf	16.07	31.52	1045.95	16.92	1260.48	1.91E+08	0.0000	0.0018	0.0000	0.0000	0.0000	1.0000	
24 Comilla	4.06	10.48	2234.40	4.34	7379.89	6.09	0.0004	0.0011	0.2318	0.0005	0.7656	0.0006	
25 Dhaka	18.60	34.62	2502.09	29.67	6372.95	2779.52	0.0016	0.0029	0.2132	0.0025	0.5430	0.2368	
26 Chandpur	58.70	34.28	1365.22	103.25	1962.07	4.44E+14	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
27 Jessore	3.02	7.72	2777.88	2.20	13058.24	3.15	0.0002	0.0005	0.1752	0.0001	0.8237	0.0002	
28 Khulna	8.28	9.10	1469.76	8.62	3570.73	17.62	0.0016	0.0018	0.2891	0.0017	0.7023	0.0035	
29 Satkhira	8.33	28.07	1654.78	13.31	3195.40	261408.86	0.0000	0.0001	0.0062	0.0000	0.0120	0.9816	
30 Barisal	3.42	8.41	1585.18	4.93	2606.61	3.71	0.0008	0.0020	0.3763	0.0012	0.6188	0.0009	
31 Bhola	0.99	14.28	2139.89	7.24	6898.27	6.22	0.0001	0.0001	0.2360	0.0008	0.7608	0.0007	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0161	0.0572	6.3808	0.0251	17.1107	7.4104	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B67. Determination of Best Fit Distribution

Chi-square values of Temperature(Min) Data for different probability distributions
September

Station	Scaling						Rank	Appendix B					
	Rank							Comparison					
	1	3	5	2	6	4		1.00	3.20	326.86	1.50	786.29	216.19
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Bogra	1.34	8.07	1128.15	8.16	2401.01	3.03	0.0004	0.0023	0.3178	0.0023	0.6764	0.0009	
2 Chittagong	3.76	13.24	1766.50	12.21	4975.12	11.32	0.0006	0.0020	0.2605	0.0018	0.7336	0.0017	
3 Cox's Bazar	2.09	10.83	2217.46	10.74	8336.53	1.43	0.0002	0.0010	0.2096	0.0010	0.7880	0.0001	
4 Dinajpur	2.09	10.83	2217.46	10.74	8336.53	1.43	0.0002	0.0010	0.2096	0.0010	0.7880	0.0001	
5 Faridpur	3.85	7.72	950.28	4.95	1683.30	10.34	0.0014	0.0029	0.3572	0.0019	0.6327	0.0039	
6 Feni	3.12	18.76	1313.60	2.28	2521.56	14.78	0.0008	0.0048	0.3391	0.0006	0.6509	0.0038	
7 Hatiya	9.43	12.55	1149.74	21.54	2097.89	16.03	0.0029	0.0038	0.3476	0.0065	0.6343	0.0048	
8 Ishurdi	9.64	26.69	1346.24	12.50	2222.40	308805.11	0.0000	0.0001	0.0043	0.0000	0.0071	0.9884	
9 Khepupara	9.89	23.59	2008.15	10.96	5115.54	120.25	0.0014	0.0032	0.2755	0.0015	0.7019	0.0165	
10 Kutubdia	3.58	9.33	1404.48	1.30	4089.80	7.71	0.0006	0.0017	0.2546	0.0002	0.7414	0.0014	
11 Majdicourt	3.04	23.24	1610.34	4.35	3407.36	82.06	0.0006	0.0045	0.3139	0.0008	0.6642	0.0160	
12 Madaripur	5.00	3.93	1403.38	4.90	3936.87	9.91	0.0009	0.0007	0.2616	0.0009	0.7339	0.0018	
13 Mongla	0.25	9.50	1454.70	5.37	4810.77	9.37	0.0000	0.0015	0.2313	0.0009	0.7648	0.0015	
14 Mymensingh	16.24	23.93	931.98	25.52	1119.46	1.55E+08	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
15 Patuakhali	3.57	23.59	2261.17	9.97	6490.60	9.74	0.0004	0.0027	0.2570	0.0011	0.7377	0.0011	
16 Rajshahi	13.19	8.07	1248.32	10.17	2104.27	16.87	0.0039	0.0024	0.3671	0.0030	0.6187	0.0050	
17 Rangamati	2.83	24.97	1158.52	2.62	1791.94	12.98	0.0009	0.0083	0.3870	0.0009	0.5985	0.0043	
18 Rangpur	4.98	28.07	1365.60	2.80	2248.01	489.18	0.0012	0.0068	0.3300	0.0007	0.5432	0.1182	
19 Shitakunda	0.93	16.00	2153.45	1.94	6964.15	0.72	0.0001	0.0018	0.2357	0.0002	0.7622	0.0001	
20 Srimongol	1.34	12.55	1506.42	3.78	3896.07	43.73	0.0002	0.0023	0.2757	0.0007	0.7131	0.0080	
21 Sylhet	1.34	12.55	1506.42	3.78	3896.07	43.73	0.0002	0.0023	0.2757	0.0007	0.7131	0.0080	
22 Tangail	5.66	4.36	1117.56	5.93	2602.89	8.78	0.0015	0.0012	0.2984	0.0016	0.6950	0.0023	
23 Teknaf	27.00	21.86	1118.22	46.09	1719.10	3.95E+10	0.0000	0.0023	0.0000	0.0000	0.0000	1.0000	
24 Comilla	1.52	6.69	1484.16	6.34	4168.03	8.46	0.0003	0.0012	0.2615	0.0011	0.7344	0.0015	
25 Dhaka	3.32	18.07	1235.53	3.19	2197.69	632.59	0.0008	0.0044	0.3021	0.0008	0.5373	0.1547	
26 Chandpur	46.27	34.97	1139.37	115.13	1375.94	2.85E+13	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
27 Jessore	1.30	5.66	1454.17	1.69	4191.34	9.36	0.0002	0.0010	0.2568	0.0003	0.7401	0.0017	
28 Khulna	5.58	13.59	1465.22	6.53	3357.53	20.80	0.0011	0.0028	0.3009	0.0013	0.6895	0.0043	
29 Satkhira	5.29	23.93	1498.94	10.94	2901.93	8663.50	0.0004	0.0018	0.1144	0.0008	0.2214	0.6611	
30 Barisal	4.13	7.72	1356.86	4.62	3300.50	2.08	0.0009	0.0017	0.2902	0.0010	0.7059	0.0004	
31 Bhola	7.81	21.86	2187.84	8.74	6268.14	74.24	0.0009	0.0018	0.2553	0.0010	0.7315	0.0087	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0232	0.0743	7.5902	0.0347	18.2588	5.0203	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B68. Determination of Best Fit Distribution
Chi-square values of Temperature(Min) Data for different probability distributions
October

							Scaling						
							Appendix B						
							Rank	1	3	5	2	6	4
							Comparison	1.00	2.86	212.99	1.24	296.85	27.37
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Bogra	6.05	3.24	684.67	6.92	1100.48	8.32	0.0033	0.0018	0.3783	0.0038	0.6081	0.0046	
2 Chittagong	2.10	6.00	831.07	1.06	1336.83	1.81	0.0010	0.0028	0.3814	0.0005	0.6135	0.0008	
3 Cox's Bazar	3.21	4.62	1062.58	3.03	1919.18	3.08	0.0011	0.0015	0.3547	0.0010	0.6406	0.0010	
4 Dinajpur	3.21	4.62	1062.58	3.03	1919.18	3.08	0.0011	0.0015	0.3547	0.0010	0.6406	0.0010	
5 Faridpur	2.01	14.28	788.93	0.56	1061.41	10.51	0.0011	0.0076	0.4202	0.0003	0.5653	0.0056	
6 Feni	2.11	3.93	703.03	3.00	1043.14	4.29	0.0012	0.0022	0.3996	0.0017	0.5929	0.0024	
7 Hatiya	8.66	6.69	866.78	7.88	1384.39	20.37	0.0038	0.0029	0.3777	0.0034	0.6033	0.0089	
8 Ishurdi	2.09	15.66	588.50	1.84	616.66	0.93	0.0017	0.0128	0.4801	0.0015	0.5031	0.0008	
9 Khepupara	7.46	11.86	1085.96	9.81	1902.92	12.36	0.0025	0.0039	0.3584	0.0032	0.6280	0.0041	
10 Kutubdia	2.78	4.75	692.34	8.36	1047.08	0.77	0.0016	0.0027	0.3943	0.0048	0.5963	0.0004	
11 Majdicourt	4.22	5.31	828.46	2.20	1250.97	3.57	0.0020	0.0025	0.3955	0.0010	0.5972	0.0017	
12 Madaripur	5.46	9.45	785.43	2.87	1110.13	2.08	0.0028	0.0049	0.4101	0.0015	0.5796	0.0011	
13 Mongla	4.15	6.00	629.92	4.99	772.82	5.86	0.0029	0.0042	0.4424	0.0035	0.5428	0.0041	
14 Mymensingh	2.89	17.72	663.15	2.87	699.91	10.52	0.0021	0.0127	0.4747	0.0021	0.5010	0.0075	
15 Patuakhali	3.75	21.52	887.21	5.79	1130.88	205.55	0.0017	0.0095	0.3935	0.0026	0.5016	0.0912	
16 Rajshahi	4.07	11.52	502.62	5.34	505.66	5.60	0.0039	0.0111	0.4857	0.0052	0.4886	0.0054	
17 Rangamati	1.91	8.41	581.56	6.32	702.63	2.85	0.0015	0.0065	0.4461	0.0048	0.5390	0.0022	
18 Rangpur	4.45	17.03	706.06	6.24	841.57	30.12	0.0028	0.0106	0.4398	0.0039	0.5242	0.0188	
19 Shitakunda	4.02	6.00	756.90	6.05	1266.42	17.63	0.0020	0.0029	0.3680	0.0029	0.6157	0.0086	
20 Srimongol	2.04	7.38	564.10	2.34	731.76	3.45	0.0016	0.0056	0.4303	0.0018	0.5581	0.0026	
21 Sylhet	2.04	7.38	564.10	2.34	731.76	3.45	0.0016	0.0056	0.4303	0.0018	0.5581	0.0026	
22 Tangail	1.33	9.36	555.17	1.55	755.45	1.89	0.0010	0.0071	0.4191	0.0012	0.5703	0.0014	
23 Teknaf	3.49	17.38	625.93	6.56	613.92	779.75	0.0017	0.0056	0.3058	0.0032	0.2999	0.3809	
24 Comilla	1.74	7.38	635.84	4.03	813.45	8.90	0.0012	0.0050	0.4322	0.0027	0.5529	0.0060	
25 Dhaka	0.69	6.69	598.02	1.17	744.61	3.38	0.0005	0.0049	0.4415	0.0009	0.5497	0.0025	
26 Chandpur	6.54	21.17	672.75	8.62	667.00	88332.16	0.0001	0.0002	0.0075	0.0001	0.0074	0.9847	
27 Jessore	1.39	7.38	665.38	4.26	940.18	0.93	0.0009	0.0046	0.4109	0.0026	0.5805	0.0006	
28 Khulna	4.07	5.66	764.25	3.25	1263.98	6.19	0.0020	0.0028	0.3733	0.0016	0.6174	0.0030	
29 Satkhira	6.75	10.83	746.38	7.04	1080.14	6.08	0.0036	0.0058	0.4019	0.0038	0.5816	0.0033	
30 Barisal	0.94	11.52	822.58	1.18	1261.70	8.45	0.0004	0.0055	0.3905	0.0006	0.5990	0.0040	
31 Bhola	6.42	8.07	876.78	3.77	1424.37	5.56	0.0028	0.0058	0.3771	0.0016	0.6126	0.0024	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0572	0.1634	12.1752	0.0706	16.9688	1.5643	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B69. Determination of Best Fit Distribution
Chi-square values of Temperature(Min) Data for different probability distributions

Station							Scaling						
							Rank	2	3	6	1	5	4
							Comparison	1.13	2.87	126.23	1.00	114.74	19.57
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Bogra	3.58	13.93	463.87	3.07	441.39	4.16	0.0039	0.0150	0.4988	0.0033	0.4746	0.0045	
2 Chittagong	4.64	6.34	342.02	0.70	243.28	9.38	0.0077	0.0105	0.5640	0.0012	0.4012	0.0155	
3 Cox's Bazar	1.07	9.45	378.69	0.77	316.15	2.68	0.0015	0.0133	0.5343	0.0011	0.4460	0.0038	
4 Dinajpur	1.07	9.45	378.69	0.77	316.15	2.68	0.0015	0.0133	0.5343	0.0011	0.4460	0.0038	
5 Faridpur	4.11	7.38	408.22	9.71	434.34	6.03	0.0047	0.0085	0.4693	0.0112	0.4994	0.0069	
6 Feni	6.55	2.90	312.02	8.83	257.08	7.25	0.0110	0.0049	0.5247	0.0148	0.4323	0.0122	
7 Hatiya	3.91	11.86	398.13	5.15	336.11	12.86	0.0051	0.0154	0.5184	0.0067	0.4376	0.0168	
8 Ishurdi	2.21	6.00	297.65	0.79	202.67	3.79	0.0043	0.0117	0.5801	0.0015	0.3950	0.0074	
9 Khepupara	3.32	22.55	480.31	3.95	395.08	68.20	0.0034	0.0232	0.4934	0.0041	0.4059	0.0701	
10 Kutubdia	3.11	6.83	328.73	1.29	292.49	6.80	0.0049	0.0107	0.5142	0.0020	0.4575	0.0106	
11 Majdicourt	4.92	10.14	390.06	1.17	330.68	17.07	0.0065	0.0134	0.5173	0.0016	0.4386	0.0226	
12 Madaripur	4.42	8.76	446.81	2.03	413.81	4.66	0.0050	0.0099	0.5075	0.0023	0.4700	0.0053	
13 Mongla	1.00	7.00	411.22	2.07	521.91	1.79	0.0011	0.0074	0.4352	0.0022	0.5523	0.0019	
14 Mymensingh	5.58	18.41	465.03	2.11	447.84	15.98	0.0058	0.0193	0.4870	0.0022	0.4690	0.0167	
15 Patuakhali	2.19	17.72	591.42	1.09	684.83	0.46	0.0017	0.0137	0.4557	0.0008	0.5277	0.0004	
16 Rajshahi	4.14	23.24	440.15	2.68	371.06	4.82	0.0049	0.0275	0.5202	0.0032	0.4386	0.0057	
17 Rangamati	7.55	1.52	339.77	9.26	311.92	4.32	0.0112	0.0023	0.5039	0.0137	0.4626	0.0064	
18 Rangpur	1.86	4.97	354.42	3.07	382.97	3.92	0.0025	0.0066	0.4718	0.0041	0.5098	0.0052	
19 Shitakunda	2.82	3.24	310.97	2.30	273.16	3.54	0.0047	0.0054	0.5217	0.0039	0.4583	0.0059	
20 Srimongol	5.97	22.21	251.47	15.65	123.16	27158.56	0.0002	0.0008	0.0091	0.0006	0.0045	0.9848	
21 Sylhet	5.97	22.21	251.47	15.65	123.16	27158.56	0.0002	0.0008	0.0091	0.0006	0.0045	0.9848	
22 Tangail	3.14	7.09	421.95	2.41	579.20	2.43	0.0031	0.0070	0.4152	0.0024	0.5700	0.0024	
23 Teknaf	0.46	9.45	277.64	1.57	172.14	20.26	0.0010	0.0008	0.5766	0.0033	0.3575	0.0421	
24 Comilla	5.96	3.24	303.54	3.74	269.33	5.61	0.0101	0.0055	0.5132	0.0063	0.4554	0.0095	
25 Dhaka	2.38	14.62	522.98	0.83	500.80	1.78	0.0023	0.0140	0.5012	0.0008	0.4800	0.0017	
26 Chandpur	4.94	5.31	421.21	8.37	468.07	16.11	0.0053	0.0057	0.4559	0.0091	0.5066	0.0174	
27 Jessore	3.75	8.41	377.81	3.96	244.39	3.42	0.0058	0.0131	0.5887	0.0062	0.3808	0.0053	
28 Khulna	1.13	11.17	373.79	0.54	341.00	2.51	0.0015	0.0153	0.5119	0.0007	0.4670	0.0034	
29 Satkhira	3.49	9.10	315.05	1.93	273.73	3.56	0.0057	0.0150	0.5191	0.0032	0.4511	0.0059	
30 Barisal	1.82	7.72	379.72	0.06	391.98	1.35	0.0023	0.0099	0.4852	0.0001	0.5008	0.0017	
31 Bhola	2.16	6.69	359.64	1.97	356.48	2.22	0.0030	0.0150	0.4932	0.0027	0.4889	0.0030	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1320	0.3349	14.7304	0.1167	13.3893	2.2838	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B70. Determination of Best Fit Distribution
Chi-square values of Temperature(Min) Data for different probability distributions
December

Station							Scaling					
							Rank					Appendix B
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	2	3	6	1	5	4
1 Bogra	0.21	11.17	312.42	0.25	323.26	0.85	0.0003	0.0172	0.4820	0.0004	0.4987	0.0013
2 Chittagong	3.35	2.55	327.30	5.78	356.90	3.68	0.0048	0.0036	0.4679	0.0083	0.5102	0.0053
3 Cox's Bazar	1.00	14.28	389.84	2.62	363.37	2.25	0.0013	0.0185	0.5041	0.0034	0.4699	0.0029
4 Dinajpur	1.00	14.28	389.84	2.62	363.37	2.25	0.0013	0.0185	0.5041	0.0034	0.4699	0.0029
5 Faridpur	0.98	12.90	297.54	3.81	276.40	101.15	0.0014	0.0186	0.4295	0.0055	0.3990	0.1460
6 Feni	3.57	5.31	311.40	2.79	356.11	6.16	0.0052	0.0077	0.4544	0.0041	0.5196	0.0090
7 Hatiya	4.33	10.83	405.46	6.34	497.24	1.65	0.0047	0.0117	0.4379	0.0068	0.5371	0.0018
8 Ishurdi	2.44	5.31	208.18	1.73	193.45	2.93	0.0059	0.0128	0.5028	0.0042	0.4672	0.0071
9 Khepupara	0.62	10.14	498.46	1.66	671.13	1.84	0.0005	0.0086	0.4210	0.0014	0.5669	0.0016
10 Kutubdia	9.08	19.75	237.95	9.20	105.21	3.46	0.0236	0.0513	0.6186	0.0239	0.2735	0.0090
11 Majdicourt	5.33	19.45	337.81	4.88	258.58	491.20	0.0048	0.0174	0.3024	0.0044	0.2314	0.4396
12 Madaripur	4.27	5.31	306.97	3.38	361.83	6.92	0.0062	0.0077	0.4457	0.0049	0.5254	0.0100
13 Mongla	1.62	4.00	363.36	3.09	609.35	1.88	0.0016	0.0041	0.3695	0.0031	0.6197	0.0019
14 Mymensingh	4.59	13.59	316.98	0.70	306.91	10.86	0.0070	0.0208	0.4850	0.0011	0.4696	0.0166
15 Patuakhali	1.66	5.66	431.41	1.98	573.88	5.12	0.0016	0.0055	0.4231	0.0019	0.5628	0.0050
16 Rajshahi	10.98	8.07	238.68	3.71	188.37	14.68	0.0236	0.0174	0.5138	0.0080	0.4055	0.0316
17 Rangamati	0.72	10.14	258.80	0.69	182.50	0.67	0.0016	0.0224	0.5707	0.0015	0.4024	0.0015
18 Rangpur	0.50	8.41	256.04	1.83	228.40	0.84	0.0010	0.0170	0.5162	0.0037	0.4605	0.0017
19 Shitakunda	1.84	8.41	373.44	5.02	506.06	6.81	0.0020	0.0093	0.4142	0.0056	0.5613	0.0076
20 Srimongol	5.62	26.00	219.30	2.22	130.49	1.79	0.0146	0.0675	0.5690	0.0058	0.3386	0.0047
21 Sylhet	5.62	26.00	219.30	2.22	130.49	1.79	0.0146	0.0675	0.5690	0.0058	0.3386	0.0047
22 Tangail	1.57	9.24	275.71	3.35	334.97	1.35	0.0025	0.0148	0.4403	0.0054	0.5349	0.0022
23 Teknaf	4.29	8.41	490.62	5.26	528.55	2.68	0.0041	0.0675	0.4718	0.0051	0.5083	0.0026
24 Comilla	1.57	7.72	223.79	1.18	187.14	4.13	0.0037	0.0182	0.5259	0.0028	0.4398	0.0097
25 Dhaka	2.73	4.62	249.49	1.81	229.75	7.12	0.0055	0.0093	0.5035	0.0037	0.4636	0.0144
26 Chandpur	6.74	2.55	302.85	9.95	327.98	9.29	0.0102	0.0039	0.4593	0.0151	0.4974	0.0141
27 Jessore	5.78	3.59	259.45	2.78	242.99	2.50	0.0112	0.0069	0.5018	0.0054	0.4699	0.0048
28 Khulna	4.44	4.62	253.71	5.30	177.87	2.82	0.0099	0.0103	0.5654	0.0118	0.3964	0.0063
29 Satkhira	1.33	12.90	271.97	2.18	257.34	0.54	0.0024	0.0236	0.4979	0.0040	0.4711	0.0010
30 Barisal	4.67	6.34	313.89	2.07	389.48	0.94	0.0065	0.0088	0.4375	0.0029	0.5429	0.0013
31 Bhola	1.02	7.72	377.02	3.00	505.49	1.20	0.0011	0.0236	0.4210	0.0033	0.5645	0.0013
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1850	0.6119	14.8252	0.1664	14.5166	0.7694

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B71. Determination of Best Fit Distribution
Chi-square values of Temperature(Min) Data for different probability distributions
Yearly Maximum Monthly of Monthly Average Minimum

Station							Scaling						
							Rank	2	3	5	1	6	Appendix B
							Comparison	1.23	3.85	324.55	1.00	633.76	69.72
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Bogra	5.98	6.34	2716.56	4.37	12734.39	1.94	0.0004	0.0004	0.1756	0.0003	0.8232	0.0001	
2 Chittagong	12.37	14.28	1208.47	10.04	2047.45	5.93	0.0038	0.0043	0.3664	0.0030	0.6207	0.0018	
3 Cox's Bazar	6.19	13.93	1450.20	6.93	2940.48	1.98	0.0014	0.0032	0.3281	0.0016	0.6653	0.0004	
4 Dinajpur	6.19	13.93	1450.20	6.93	2940.48	1.98	0.0014	0.0032	0.3281	0.0016	0.6653	0.0004	
5 Faridpur	3.87	16.00	1197.48	8.71	2114.78	99.80	0.0011	0.0047	0.3480	0.0025	0.6146	0.0290	
6 Feni	5.25	32.90	1616.67	5.44	2880.62	82.48	0.0011	0.0071	0.3497	0.0012	0.6231	0.0178	
7 Hatiya	4.86	10.48	1343.61	2.98	3108.98	4.95	0.0011	0.0023	0.3002	0.0007	0.6946	0.0011	
8 Ishurdi	16.91	36.00	2544.42	2.75	5955.38	6.36	0.0020	0.0042	0.2972	0.0003	0.6956	0.0007	
9 Khepupara	5.70	17.72	1631.50	3.89	1562.10	1.10	0.0018	0.0055	0.5064	0.0012	0.4848	0.0003	
10 Kutubdia	5.51	6.42	1031.63	5.23	1660.36	5.17	0.0020	0.0024	0.3801	0.0019	0.6117	0.0019	
11 Maijdicourt	3.03	19.79	1284.04	2.73	2184.21	3.50	0.0009	0.0057	0.3672	0.0008	0.6245	0.0010	
12 Madaripur	3.43	12.55	1605.83	3.32	4123.97	1.39	0.0006	0.0022	0.2793	0.0006	0.7171	0.0002	
13 Mongla	10.07	21.50	1848.59	5.32	917.61	2.27	0.0036	0.0077	0.6589	0.0019	0.3271	0.0008	
14 Mymensingh	51.21	41.17	1893.16	62.07	3361.46	1.46E+14	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
15 Patuakhali	9.49	17.72	1625.55	4.46	2469.51	1.22	0.0023	0.0043	0.3938	0.0011	0.5982	0.0003	
16 Rajshahi	11.45	34.28	2026.25	5.22	3986.36	18.11	0.0019	0.0056	0.3332	0.0009	0.6555	0.0030	
17 Rangamati	0.56	14.97	1323.56	1.55	2778.74	1.13	0.0001	0.0036	0.3212	0.0004	0.6744	0.0003	
18 Rangpur	5.14	18.76	2091.22	3.89	5912.95	6.97	0.0006	0.0023	0.2601	0.0005	0.7355	0.0009	
19 Shitakunda	7.71	23.59	1993.24	6.30	3554.22	3.16	0.0014	0.0042	0.3567	0.0011	0.6360	0.0006	
20 Srirongol	4.32	30.83	2902.62	5.69	9605.33	47.63	0.0003	0.0024	0.2304	0.0005	0.7625	0.0038	
21 Sylhet	4.32	30.83	2902.62	5.69	9605.33	47.63	0.0003	0.0024	0.2304	0.0005	0.7625	0.0038	
22 Tangail	1.58	11.18	1447.90	0.43	4210.02	1.65	0.0003	0.0020	0.2552	0.0001	0.7421	0.0003	
23 Teknaf	4.62	12.90	1280.08	5.59	1449.62	4.95	0.0017	0.0024	0.4642	0.0020	0.5257	0.0018	
24 Comilla	3.11	26.00	2701.07	3.99	8936.32	3.37	0.0003	0.0022	0.2314	0.0003	0.7655	0.0003	
25 Dhaka	11.77	33.59	1845.40	8.23	3491.53	3.75	0.0022	0.0062	0.3421	0.0015	0.6473	0.0007	
26 Chandpur	12.05	34.28	1088.89	24.03	1246.51	4.81E+06	0.0000	0.0000	0.0002	0.0000	0.0003	0.9995	
27 Jessore	9.63	30.14	2063.41	2.97	4335.10	2.86	0.0015	0.0047	0.3202	0.0005	0.6727	0.0004	
28 Khulna	2.80	20.48	1585.56	3.30	3251.75	6.46	0.0006	0.0042	0.3256	0.0007	0.6677	0.0013	
29 Satkhira	3.71	30.14	1604.94	4.91	2856.25	76.80	0.0008	0.0066	0.3507	0.0011	0.6241	0.0168	
30 Barisal	3.96	12.55	1580.63	2.45	3086.96	2.22	0.0008	0.0027	0.3371	0.0005	0.6584	0.0005	
31 Bhola	3.29	17.38	2026.54	6.19	4878.18	1.48	0.0005	0.0066	0.2923	0.0009	0.7036	0.0002	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0367	0.1153	9.7299	0.0300	18.9997	2.0902	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B72. Determination of Best Fit Distribution
Chi-square values of Temperature(Min) Data for different probability distributions
Yearly Minimum Monthly of Monthly Average Minimum

							Scaling						Appendix B
							Rank	2	3	5	1	6	4
							Comparison	1.14	1.43	54.08	1.00	67.98	2.48
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Bogra	3.79	9.79	271.09	6.65	304.89	21.62	0.0061	0.0159	0.4388	0.0108	0.4935	0.0350	
2 Chittagong	2.44	22.55	428.30	4.44	464.70	62.61	0.0025	0.0229	0.4348	0.0045	0.4718	0.0636	
3 Cox's Bazar	8.09	14.62	502.57	9.85	659.05	18.32	0.0067	0.0121	0.4145	0.0081	0.5435	0.0151	
4 Dinajpur	8.09	14.62	502.57	9.85	659.05	18.32	0.0067	0.0121	0.4145	0.0081	0.5435	0.0151	
5 Faridpur	4.06	6.00	322.44	4.14	442.56	8.51	0.0052	0.0076	0.4093	0.0053	0.5618	0.0108	
6 Feni	3.70	4.28	314.98	2.38	434.05	12.24	0.0048	0.0055	0.4082	0.0031	0.5625	0.0159	
7 Hatiya	6.40	9.45	316.16	4.88	331.91	55.67	0.0088	0.0130	0.4364	0.0067	0.4581	0.0768	
8 Ishurdi	4.62	8.76	222.72	0.40	241.74	15.44	0.0094	0.0177	0.4511	0.0008	0.4897	0.0313	
9 Khepupara	10.83	6.00	391.71	15.59	549.52	22.97	0.0109	0.0060	0.3930	0.0156	0.5514	0.0230	
10 Kutubdia	24.28	8.50	478.32	23.27	785.40	25.90	0.0180	0.0063	0.3554	0.0173	0.5836	0.0192	
11 Majdicourt	2.04	6.34	301.72	4.72	356.89	8.07	0.0030	0.0093	0.4438	0.0069	0.5250	0.0119	
12 Madaripur	3.82	5.31	271.97	2.17	332.58	5.92	0.0061	0.0085	0.4374	0.0035	0.5349	0.0095	
13 Mongla	3.78	3.50	287.82	8.01	485.98	7.44	0.0048	0.0044	0.3613	0.0101	0.6101	0.0093	
14 Mymensingh	4.67	9.79	326.51	7.35	440.29	12.20	0.0058	0.0122	0.4077	0.0092	0.5498	0.0152	
15 Patuakhali	12.53	10.14	361.89	9.95	421.14	35.94	0.0147	0.0119	0.4250	0.0117	0.4945	0.0422	
16 Rajshahi	7.45	10.48	246.20	5.67	270.85	11.80	0.0135	0.0190	0.4456	0.0103	0.4903	0.0214	
17 Rangamati	11.22	8.07	230.87	5.84	188.59	6.52	0.0249	0.0179	0.5118	0.0129	0.4181	0.0144	
18 Rangpur	4.41	7.72	271.65	8.10	372.24	3.94	0.0066	0.0116	0.4066	0.0121	0.5572	0.0059	
19 Shitakunda	5.73	11.86	283.51	7.75	294.86	15.03	0.0093	0.0192	0.4582	0.0125	0.4765	0.0243	
20 Srimongol	7.30	2.55	203.01	3.47	254.36	7.28	0.0153	0.0053	0.4247	0.0073	0.5322	0.0152	
21 Sylhet	7.30	2.55	203.01	3.47	254.36	7.28	0.0153	0.0053	0.4247	0.0073	0.5322	0.0152	
22 Tangail	8.50	11.18	294.39	4.54	424.95	13.02	0.0112	0.0148	0.3891	0.0060	0.5617	0.0172	
23 Teknaf	3.52	12.55	520.07	1.91	770.32	5.27	0.0027	0.0053	0.3959	0.0015	0.5864	0.0040	
24 Comilla	6.58	6.69	276.59	3.45	368.40	5.51	0.0099	0.0100	0.4145	0.0052	0.5521	0.0083	
25 Dhaka	7.10	0.48	241.93	3.85	282.23	5.60	0.0131	0.0009	0.4470	0.0071	0.5215	0.0103	
26 Chandpur	6.32	3.59	349.89	11.22	556.64	6.26	0.0068	0.0038	0.3746	0.0120	0.5960	0.0067	
27 Jessore	6.31	13.59	301.97	4.37	342.75	14.91	0.0092	0.0199	0.4415	0.0064	0.5012	0.0218	
28 Khulna	2.99	9.79	261.80	1.76	284.41	3.73	0.0053	0.0173	0.4638	0.0031	0.5038	0.0066	
29 Satkhira	6.31	6.69	299.45	7.03	370.81	5.50	0.0091	0.0096	0.4304	0.0101	0.5329	0.0079	
30 Barisal	1.74	8.41	314.13	4.19	427.50	7.10	0.0023	0.0110	0.4117	0.0055	0.5602	0.0093	
31 Bhola	7.69	16.00	418.22	1.00	558.30	17.04	0.0076	0.0096	0.4107	0.0010	0.5483	0.0167	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.2753	0.3462	13.0824	0.2419	16.4445	0.5994	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B73. Determination of Best Fit Distribution

Chi-square values of Temperature(Min) Data for different probability distributions
 Yearly Average Monthly of Monthly Average Minimum

Station	Scaling						Appendix B					
	Rank	1	3	5	2	6		4				
	Comparison	1.00	2.96	348.41	1.26	942.09		181.18				
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Bogra	4.77	14.28	1320.78	6.31	3438.51	7.07	0.0010	0.0030	0.2756	0.0013	0.7176	0.0015
2 Chittagong	2.79	5.31	1082.03	5.97	2785.26	5.70	0.0007	0.0014	0.2784	0.0015	0.7165	0.0015
3 Cox's Bazar	0.77	14.28	1262.87	0.92	2916.49	8.74	0.0002	0.0034	0.3004	0.0002	0.6937	0.0021
4 Dinajpur	0.77	14.28	1262.87	0.92	2916.49	8.74	0.0002	0.0034	0.3004	0.0002	0.6937	0.0021
5 Faridpur	1.97	13.59	1192.40	2.08	2783.62	280.36	0.0005	0.0032	0.2790	0.0005	0.6513	0.0656
6 Feni	2.00	8.76	1317.69	3.34	3717.75	12.82	0.0004	0.0017	0.2603	0.0007	0.7344	0.0025
7 Hatiya	5.94	4.62	1073.17	3.83	2762.26	11.42	0.0015	0.0012	0.2779	0.0010	0.7154	0.0030
8 Ishurdi	0.54	7.72	975.00	1.07	2262.36	12.48	0.0002	0.0024	0.2992	0.0003	0.6942	0.0038
9 Khepupara	2.33	10.48	1653.06	3.74	5458.32	50.51	0.0003	0.0015	0.2303	0.0005	0.7604	0.0070
10 Kutubdia	2.62	5.91	834.20	2.88	1962.24	1.28	0.0009	0.0021	0.2970	0.0010	0.6985	0.0005
11 Maijdicourt	9.82	17.38	1214.45	11.79	2534.96	83.26	0.0025	0.0045	0.3137	0.0030	0.6547	0.0215
12 Madaripur	4.86	9.10	1065.56	3.86	2463.62	41.76	0.0014	0.0025	0.2969	0.0011	0.6865	0.0116
13 Mongla	3.34	6.50	1993.12	0.97	11512.76	4.16	0.0002	0.0005	0.1474	0.0001	0.8515	0.0003
14 Mymensingh	46.14	31.52	1285.25	22.84	2278.80	1.60E+13	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
15 Patuakhali	5.93	23.93	2218.65	6.37	7388.61	31433.12	0.0001	0.0006	0.0540	0.0002	0.1799	0.7652
16 Rajshahi	4.59	6.69	1058.51	5.67	2655.78	16.80	0.0012	0.0018	0.2824	0.0015	0.7086	0.0045
17 Rangamati	4.25	14.97	852.75	3.16	1381.22	8.98	0.0019	0.0066	0.3764	0.0014	0.6097	0.0040
18 Rangpur	6.18	6.34	1032.30	8.00	2694.18	18.28	0.0016	0.0017	0.2742	0.0021	0.7155	0.0049
19 Shitakunda	5.69	15.66	1560.27	5.69	4486.43	18.79	0.0009	0.0026	0.2561	0.0009	0.7364	0.0031
20 Srimongol	1.21	11.52	1493.33	3.79	4994.15	11.15	0.0002	0.0018	0.2292	0.0006	0.7665	0.0017
21 Sylhet	1.21	11.52	1493.33	3.79	4994.15	11.15	0.0002	0.0018	0.2292	0.0006	0.7665	0.0017
22 Tangail	7.59	18.91	1258.05	4.54	3236.18	3.16E+04	0.0002	0.0005	0.0348	0.0001	0.0895	0.8748
23 Teknaf	2.48	14.62	1405.75	0.98	3657.43	36.11	0.0005	0.0018	0.2747	0.0002	0.7147	0.0071
24 Comilla	0.72	8.41	1280.68	1.53	3759.71	3.68	0.0001	0.0017	0.2534	0.0003	0.7438	0.0007
25 Dhaka	2.14	5.66	1236.28	3.24	3359.01	5.99	0.0005	0.0012	0.2680	0.0007	0.7283	0.0013
26 Chandpur	23.80	29.10	1106.17	14.53	1706.26	1.36E+10	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
27 Jessore	11.04	5.31	2066.06	11.15	8032.92	4.31	0.0011	0.0005	0.2039	0.0011	0.7929	0.0004
28 Khulna	6.41	6.69	1113.04	11.02	2722.43	3.45	0.0017	0.0017	0.2881	0.0029	0.7047	0.0009
29 Satkhira	1.14	10.83	1252.08	8.64	3251.48	39.31	0.0003	0.0024	0.2744	0.0019	0.7125	0.0086
30 Barisal	2.59	14.97	1533.67	2.29	4495.81	0.20	0.0004	0.0025	0.2535	0.0004	0.7432	0.0000
31 Bhola	0.37	14.28	2079.49	1.17	8069.71	12.09	0.0000	0.0024	0.2043	0.0001	0.7929	0.0012
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0210	0.0621	7.3131	0.0264	19.7742	3.8030

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B74. Determination of Best Fit Distribution

Chi-square values of Temperature(Min) Data for different probability distributions

Minimum Monthly Average Minimum Temperature of Total Pre-Monsoon(Mar-May)

Station	Scaling						Appendix B					
	Rank 2		Rank 1		Rank 6		Rank 3		Rank 5		Rank 4	
	Comparison	1.07	1.00	59.29	1.12	53.37	1.18	Normal	Uniform	Exponential	Log-Normal	Poisson
1 Bogra	4.57	3.24	383.48	7.54	396.10	2.59	0.0057	0.0041	0.4808	0.0095	0.4967	0.0032
2 Chittagong	11.42	6.00	384.30	8.92	384.88	13.19	0.0141	0.0074	0.4752	0.0110	0.4759	0.0163
3 Cox's Bazar	11.93	4.62	489.83	6.35	633.33	9.78	0.0103	0.0040	0.4238	0.0055	0.5479	0.0085
4 Dinajpur	11.93	4.62	489.83	6.35	633.33	9.78	0.0103	0.0040	0.4238	0.0055	0.5479	0.0085
5 Faridpur	7.40	1.52	341.31	8.01	350.61	4.84	0.0104	0.0021	0.4782	0.0112	0.4913	0.0068
6 Feni	4.84	4.62	337.43	4.29	249.74	2.61	0.0080	0.0077	0.5591	0.0071	0.4138	0.0043
7 Hatiya	5.77	7.72	484.25	8.74	500.49	10.02	0.0057	0.0076	0.4762	0.0086	0.4921	0.0099
8 Ishurdi	7.53	3.24	310.45	3.65	252.13	4.53	0.0129	0.0056	0.5338	0.0063	0.4336	0.0078
9 Khepupara	4.25	3.24	426.77	5.76	410.44	5.23	0.0050	0.0038	0.4987	0.0067	0.4797	0.0061
10 Kutubdia	3.06	8.50	668.72	3.51	648.78	0.71	0.0023	0.0064	0.5016	0.0026	0.4866	0.0005
11 Majdicourt	1.38	11.86	288.73	6.17	178.97	11.27	0.0028	0.0238	0.5793	0.0124	0.3591	0.0226
12 Madaripur	7.56	1.86	318.06	9.71	294.51	5.44	0.0119	0.0029	0.4992	0.0152	0.4622	0.0085
13 Mongla	13.86	8.50	469.26	15.46	515.35	13.38	0.0134	0.0082	0.4530	0.0149	0.4975	0.0129
14 Mymensingh	7.17	7.38	392.53	7.14	344.25	3.31	0.0094	0.0097	0.5153	0.0094	0.4519	0.0043
15 Patuakhali	3.04	6.00	410.90	5.46	381.02	5.58	0.0037	0.0074	0.5060	0.0067	0.4692	0.0069
16 Rajshahi	6.92	4.97	324.15	1.29	320.78	3.00	0.0105	0.0075	0.4903	0.0019	0.4852	0.0045
17 Rangamati	3.02	11.17	293.20	3.80	193.50	18.37	0.0058	0.0214	0.5605	0.0073	0.3699	0.0351
18 Rangpur	1.21	12.21	337.58	1.63	249.91	0.49	0.0020	0.0202	0.5598	0.0027	0.4144	0.0008
19 Shitakunda	3.66	3.24	252.09	4.02	158.28	3.50	0.0086	0.0076	0.5934	0.0095	0.3726	0.0082
20 Srimongol	3.74	7.72	229.38	2.57	127.96	3.84	0.0100	0.0206	0.6113	0.0068	0.3410	0.0102
21 Sylhet	3.74	7.72	229.38	2.57	127.96	3.84	0.0100	0.0206	0.6113	0.0068	0.3410	0.0102
22 Tangail	4.15	1.18	245.72	4.01	253.09	4.42	0.0081	0.0023	0.4794	0.0078	0.4938	0.0086
23 Teknaf	1.62	5.66	467.31	2.89	530.97	7.03	0.0016	0.0206	0.4602	0.0028	0.5229	0.0069
24 Comilla	11.92	5.31	367.87	9.84	302.53	13.14	0.0168	0.0075	0.5177	0.0138	0.4257	0.0185
25 Dhaka	11.61	4.62	371.09	10.97	355.68	15.90	0.0151	0.0060	0.4820	0.0143	0.4620	0.0207
26 Chandpur	11.28	1.17	358.60	10.92	365.54	9.69	0.0149	0.0015	0.4736	0.0144	0.4828	0.0128
27 Jessore	2.85	6.69	367.64	3.91	353.49	3.70	0.0039	0.0091	0.4980	0.0053	0.4788	0.0050
28 Khulna	11.62	1.52	337.37	16.54	315.29	10.40	0.0168	0.0022	0.4870	0.0239	0.4551	0.0150
29 Satkhira	3.79	3.24	345.25	10.13	321.58	2.29	0.0055	0.0047	0.5031	0.0148	0.4686	0.0033
30 Barisal	11.27	2.55	318.69	9.44	294.68	9.94	0.0174	0.0039	0.4929	0.0146	0.4558	0.0154
31 Bhola	6.87	0.48	352.79	11.91	340.38	7.00	0.0096	0.0047	0.4904	0.0165	0.4731	0.0097
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.2823	0.2651	15.7150	0.2960	14.1483	0.3123

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B75. Determination of Best Fit Distribution

Chi-square values of Temperature(Min) Data for different probability distributions
 Minimum Monthly Average Minimum Temperature of Total Monsoon(Jun-Oct)

Station	Scaling						Appendix B					
	Rank						Comparison					
	1	3	5	2	6	4	1.00	2.48	177.93	1.11	246.84	24.50
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Bogra	6.05	3.24	684.67	6.92	1100.48	8.32	0.0033	0.0018	0.3783	0.0038	0.6081	0.0046
2 Chittagong	2.10	6.00	831.07	1.06	1336.83	1.81	0.0010	0.0028	0.3814	0.0005	0.6135	0.0008
3 Cox's Bazar	4.62	7.03	1138.49	4.26	1914.62	2.78	0.0015	0.0023	0.3706	0.0014	0.6233	0.0009
4 Dinajpur	4.62	7.03	1138.49	4.26	1914.62	2.78	0.0015	0.0023	0.3706	0.0014	0.6233	0.0009
5 Faridpur	2.01	14.28	788.93	0.56	1061.41	10.51	0.0011	0.0076	0.4202	0.0003	0.5653	0.0056
6 Feni	2.11	3.93	703.03	3.00	1043.14	4.29	0.0012	0.0022	0.3996	0.0017	0.5929	0.0024
7 Hatiya	6.95	6.34	931.60	6.07	1687.23	19.00	0.0026	0.0024	0.3506	0.0023	0.6350	0.0072
8 Ishurdi	2.09	15.66	588.50	1.84	616.66	0.93	0.0017	0.0128	0.4801	0.0015	0.5031	0.0008
9 Khepupara	6.05	9.45	1017.94	9.19	1774.90	10.64	0.0021	0.0033	0.3599	0.0032	0.6276	0.0038
10 Kutubdia	6.93	5.50	287.40	6.53	331.60	2.33	0.0108	0.0086	0.4489	0.0102	0.5179	0.0036
11 Majdicourt	1.61	5.66	837.16	2.05	1265.63	2.16	0.0008	0.0027	0.3960	0.0010	0.5986	0.0010
12 Madaripur	5.46	9.45	785.43	2.87	1110.13	2.08	0.0028	0.0049	0.4101	0.0015	0.5796	0.0011
13 Mongla	4.15	6.00	629.92	4.99	772.82	5.86	0.0029	0.0042	0.4424	0.0035	0.5428	0.0041
14 Mymensingh	2.89	17.72	663.15	2.87	699.91	10.52	0.0021	0.0127	0.4747	0.0021	0.5010	0.0075
15 Patuakhali	3.72	21.52	887.21	5.73	1130.79	221.79	0.0016	0.0095	0.3907	0.0025	0.4980	0.0977
16 Rajshahi	4.07	11.52	502.62	5.34	505.66	5.60	0.0039	0.0111	0.4857	0.0052	0.4886	0.0054
17 Rangamati	7.48	8.07	610.92	8.39	763.40	10.15	0.0053	0.0057	0.4338	0.0060	0.5420	0.0072
18 Rangpur	4.45	17.03	706.06	6.24	841.57	30.12	0.0028	0.0106	0.4398	0.0039	0.5242	0.0188
19 Shitakunda	4.02	6.00	756.90	6.05	1266.42	17.63	0.0020	0.0029	0.3680	0.0029	0.6157	0.0086
20 Srimongol	2.04	7.38	564.10	2.34	731.76	3.45	0.0016	0.0056	0.4303	0.0018	0.5581	0.0026
21 Sylhet	2.04	7.38	564.10	2.34	731.76	3.45	0.0016	0.0056	0.4303	0.0018	0.5581	0.0026
22 Tangail	1.33	9.36	555.17	1.55	755.45	1.89	0.0010	0.0071	0.4191	0.0012	0.5703	0.0014
23 Teknaf	3.75	19.79	660.18	6.79	646.86	1231.24	0.0015	0.0056	0.2570	0.0026	0.2518	0.4793
24 Comilla	1.74	7.38	635.84	4.03	813.45	8.90	0.0012	0.0050	0.4322	0.0027	0.5529	0.0060
25 Dhaka	1.12	8.41	668.87	0.82	903.89	2.82	0.0007	0.0053	0.4218	0.0005	0.5699	0.0018
26 Chandpur	6.54	21.17	672.75	8.62	667.00	88332.16	0.0001	0.0002	0.0075	0.0001	0.0074	0.9847
27 Jessore	1.39	7.38	665.38	4.26	940.18	0.93	0.0009	0.0046	0.4109	0.0026	0.5805	0.0006
28 Khulna	4.07	5.66	764.25	3.25	1263.98	6.19	0.0020	0.0028	0.3733	0.0016	0.6174	0.0030
29 Satkhira	6.75	10.83	746.38	7.04	1080.14	6.08	0.0036	0.0058	0.4019	0.0038	0.5816	0.0033
30 Barisal	0.94	11.52	822.58	1.18	1261.70	8.45	0.0004	0.0055	0.3905	0.0006	0.5990	0.0040
31 Bhola	6.42	8.07	876.78	3.77	1424.37	5.56	0.0028	0.0058	0.3771	0.0016	0.6126	0.0024
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0683	0.1694	12.1530	0.0758	16.8601	1.6737

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B76. Determination of Best Fit Distribution

Chi-square values of Temperature(Min) Data for different probability distributions
Minimum Monthly Average Minimum Temperature of Total Post-Monsoon(Nov-Feb)

Station	Scaling						Appendix B					
	Rank						Comparison					
	2	3	5	1	6	4	1.07	1.32	55.90	1.00	70.15	2.37
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Bogra	4.95	10.21	268.82	7.24	301.56	21.07	0.0081	0.0166	0.4379	0.0118	0.4913	0.0343
2 Chittagong	2.35	19.14	413.58	3.98	469.84	97.59	0.0023	0.0190	0.4109	0.0040	0.4668	0.0970
3 Cox's Bazar	8.87	13.79	511.58	6.51	713.67	18.31	0.0070	0.0108	0.4020	0.0051	0.5607	0.0144
4 Dinajpur	8.87	13.79	511.58	6.51	713.67	18.31	0.0070	0.0108	0.4020	0.0051	0.5607	0.0144
5 Faridpur	3.70	5.21	303.84	3.44	415.19	6.99	0.0050	0.0071	0.4115	0.0047	0.5623	0.0095
6 Feni	3.70	3.79	299.22	1.39	410.36	9.30	0.0051	0.0052	0.4112	0.0019	0.5639	0.0128
7 Hatiya	5.21	9.50	293.06	3.87	291.19	27.84	0.0083	0.0151	0.4647	0.0061	0.4617	0.0441
8 Ishurdi	4.94	5.21	193.45	0.46	208.21	14.41	0.0116	0.0122	0.4534	0.0011	0.4880	0.0338
9 Khepupara	10.16	6.64	387.70	14.21	539.63	21.72	0.0104	0.0068	0.3956	0.0145	0.5506	0.0222
10 Kutubdia	13.30	5.17	456.39	13.39	630.58	10.63	0.0118	0.0046	0.4041	0.0119	0.5583	0.0094
11 Majdicourt	2.80	7.36	305.72	3.25	368.65	6.35	0.0040	0.0106	0.4404	0.0047	0.5311	0.0092
12 Madaripur	4.84	5.21	263.51	2.86	320.87	6.41	0.0080	0.0086	0.4365	0.0047	0.5315	0.0106
13 Mongla	3.09	3.89	283.05	6.91	474.54	9.78	0.0040	0.0050	0.3623	0.0088	0.6074	0.0125
14 Mymensingh	4.63	4.50	267.10	7.61	364.04	9.00	0.0071	0.0069	0.4066	0.0116	0.5542	0.0137
15 Patuakhali	13.30	9.86	350.85	11.66	404.89	34.23	0.0161	0.0120	0.4254	0.0141	0.4909	0.0415
16 Rajshahi	4.62	5.93	204.21	4.77	225.52	8.35	0.0102	0.0131	0.4504	0.0105	0.4974	0.0184
17 Rangamati	8.03	9.14	231.43	4.39	186.52	4.69	0.0181	0.0206	0.5210	0.0099	0.4199	0.0106
18 Rangpur	3.84	6.64	256.52	7.48	349.31	4.06	0.0061	0.0106	0.4086	0.0119	0.5564	0.0065
19 Shitakunda	2.92	14.97	237.85	0.75	195.21	2.89	0.0064	0.0329	0.5232	0.0017	0.4294	0.0063
20 Srimongol	4.56	0.93	183.49	3.20	226.42	5.37	0.0108	0.0022	0.4328	0.0076	0.5340	0.0127
21 Sylhet	4.56	0.93	183.49	3.20	226.42	5.37	0.0108	0.0022	0.4328	0.0076	0.5340	0.0127
22 Tangail	8.32	7.33	231.53	4.64	317.15	10.63	0.0143	0.0127	0.3995	0.0080	0.5472	0.0183
23 Teknaf	3.67	18.07	517.25	2.41	663.86	6.44	0.0030	0.0022	0.4269	0.0020	0.5479	0.0053
24 Comilla	3.45	5.21	275.41	2.20	386.29	5.33	0.0051	0.0077	0.4063	0.0033	0.5698	0.0079
25 Dhaka	4.04	2.36	256.05	1.91	309.08	4.75	0.0070	0.0041	0.4428	0.0033	0.5346	0.0082
26 Chandpur	7.17	3.43	337.69	7.98	536.26	7.15	0.0080	0.0038	0.3753	0.0089	0.5961	0.0079
27 Jessore	4.47	5.93	262.35	11.66	347.41	10.04	0.0070	0.0092	0.4087	0.0182	0.5413	0.0156
28 Khulna	0.65	7.36	248.12	2.49	284.58	3.16	0.0012	0.0135	0.4541	0.0046	0.5209	0.0058
29 Satkhira	14.50	6.64	365.44	24.22	572.15	12.57	0.0146	0.0067	0.3671	0.0243	0.5747	0.0126
30 Barisal	3.77	8.79	314.31	1.82	422.50	10.09	0.0050	0.0115	0.4129	0.0024	0.5550	0.0133
31 Bhola	6.88	13.79	385.60	0.94	515.65	14.29	0.0073	0.0067	0.4115	0.0010	0.5502	0.0152
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.2503	0.3108	13.1382	0.2350	16.4882	0.5567

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B77. Determination of Best Fit Distribution
Chi-square values of Wind Speed Data for different probability distributions
January

Rank	Scaling						Appendix B						
	3		4		5		1		6		2		
	Comparison	1.55	3.03	4.45	1.00	17.96	1.01						
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1	Barisal	8.91	12.55	15.09	5.16	168.04	4.02	0.0417	0.0587	0.0706	0.0242	0.7860	0.0188
2	Bhola	64.62	20.14	163.65	64.21	3048.90	39.97	0.0190	0.0059	0.0481	0.0189	0.8963	0.0118
3	Bogra	6.58	13.93	107.80	12.78	66.98	30.20	0.0276	0.0585	0.4524	0.0536	0.2811	0.1267
4	Chandpur	6.12	18.41	43.68	4.95	352.11	8.69	0.0141	0.0424	0.1006	0.0114	0.8114	0.0200
5	Chittagong	11.38	2.55	16.20	2.93	53.46	8.88	0.1193	0.0267	0.1698	0.0307	0.5603	0.0931
6	Comilla	2.15	13.93	22.59	2.53	101.46	0.49	0.0150	0.0973	0.1578	0.0177	0.7087	0.0034
7	Cox's Bazar	17.44	12.90	41.90	16.00	71.66	18.47	0.0978	0.0723	0.2349	0.0897	0.4017	0.1035
8	Dhaka	1.28	9.10	22.17	4.03	162.07	0.65	0.0064	0.0457	0.1113	0.0202	0.8132	0.0033
9	Dinajpur	5.03	51.17	28.34	5.41	17.22	11.97	0.0064	0.0457	0.1113	0.0202	0.8132	0.0033
10	Faridpur	7.50	12.21	45.20	21.80	190.35	10.70	0.0422	0.4295	0.2379	0.0454	0.1445	0.1005
11	Feni	5.35	9.79	21.24	5.11	195.81	1.50	0.0261	0.0424	0.1571	0.0758	0.6615	0.0372
12	Hatiya	6.10	66.69	30.44	8.43	6.13	11.13	0.0224	0.0410	0.0890	0.0214	0.8200	0.0063
13	Ishurdi	2.55	17.03	67.29	10.67	427.36	18.25	0.0473	0.5173	0.2361	0.0654	0.0475	0.0863
14	Jessore	17.34	19.10	30.38	5.57	145.16	6.08	0.0047	0.0314	0.1239	0.0196	0.7868	0.0336
15	Khepupara	40.01	27.03	22.04	6.43	44.83	10.22	0.0775	0.0854	0.1358	0.0249	0.6491	0.0272
16	Khulna	6.78	12.90	17.93	6.52	59.40	2.47	0.2658	0.1796	0.1464	0.0427	0.2977	0.0679
17	Kutubdia	2.34	9.79	41.96	11.32	134.91	3.79	0.0639	0.1217	0.1692	0.0615	0.5604	0.0233
18	Madaripur	8.67	6.00	20.92	13.22	178.74	6.24	0.0115	0.0480	0.2056	0.0554	0.6610	0.0186
19	M.Court	14.41	3.24	31.87	11.81	209.02	13.58	0.0508	0.0114	0.1123	0.0416	0.7362	0.0478
20	Mongla	7.64	12.00	23.24	9.05	105.59	2.95	0.0371	0.0257	0.0895	0.0565	0.7646	0.0267
21	Mymensingh	5.21	11.86	71.40	4.97	567.54	9.61	0.0476	0.0748	0.1448	0.0564	0.6580	0.0184
22	Patuakhali	8.86	19.79	15.52	2.51	34.50	1.49	0.0078	0.0177	0.1065	0.0074	0.8463	0.0143
23	Rajshahi	0.91	11.52	35.84	2.79	141.11	1.53	0.1071	0.2394	0.1877	0.0303	0.4174	0.0180
24	Rangamati	6.91	29.45	32.29	1.66	150.51	1.77	0.0047	0.0595	0.1850	0.0144	0.7285	0.0079
25	Rangpur	3.22	12.21	55.72	11.06	299.74	5.01	0.0311	0.1323	0.1451	0.0074	0.6762	0.0079
26	Sandwip	26.75	27.72	29.40	3.97	57.25	3.54	0.0083	0.0315	0.1440	0.0286	0.7746	0.0130
27	Satkhira	12.74	32.90	14.99	1.72	14.75	5.49	0.1800	0.1865	0.1978	0.0267	0.3851	0.0238
28	Shitakunda	11.39	17.03	12.82	2.77	59.94	4.46	0.1543	0.3984	0.1815	0.0208	0.1786	0.0665
29	Srimongol	24.18	17.72	35.05	28.11	290.24	17.64	0.1051	0.1571	0.1183	0.0255	0.5529	0.0412
30	Sylhet	3.95	6.34	77.28	6.22	513.67	1.76	0.0585	0.0429	0.0849	0.0681	0.7029	0.0427
31	Tangail	3.95	6.34	77.28	6.22	513.67	1.76	0.0065	0.0104	0.1268	0.0102	0.8432	0.0029
32	Teknaf	33.70	30.48	31.54	3.57	36.88	8.66	0.0065	0.0104	0.1268	0.0102	0.8432	0.0029
Critical Chi Square Value (95% Confidence Level)		5.99	5.99	7.81	5.99	7.81	5.99	1.7139	3.3475	4.9087	1.1030	19.8081	1.1188

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B78. Determination of Best Fit Distribution
Chi-square values of Wind Speed Data for different probability distributions
February

							Scaling					Appendix B	
							Rank	3	4	5	2	6	1
							Comparison	1.36	2.05	4.50	1.08	16.50	1.00
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	8.40	1.17	27.01	3.37	313.34	9.75	0.0231	0.0032	0.0744	0.0093	0.8631	0.0269	
2 Bhola	19.82	42.21	90.51	3.90	212.63	4.90	0.0530	0.1129	0.2420	0.0104	0.5686	0.0131	
3 Bogra	19.14	19.45	209.93	23.92	198.29	255.50	0.0264	0.0268	0.2891	0.0329	0.2730	0.3518	
4 Chandpur	3.23	14.28	23.95	1.62	190.03	1.32	0.0138	0.0609	0.1022	0.0069	0.8106	0.0056	
5 Chittagong	8.16	1.17	23.48	12.85	45.04	10.22	0.0808	0.0116	0.2326	0.1273	0.4463	0.1012	
6 Comilla	6.21	16.00	31.87	7.54	143.81	2.20	0.0299	0.0771	0.1535	0.0363	0.6926	0.0106	
7 Cox's Bazar	9.38	13.93	30.70	2.70	59.07	3.33	0.0787	0.1170	0.2577	0.0227	0.4960	0.0280	
8 Dhaka	2.28	7.72	39.04	3.19	299.26	1.51	0.0065	0.0219	0.1106	0.0090	0.8478	0.0043	
9 Dinajpur	68.37	47.03	41.05	2.54	26.71	4.75	0.0065	0.0219	0.1106	0.0090	0.8478	0.0043	
10 Faridpur	2.50	6.69	17.15	7.85	79.11	1.46	0.3590	0.2470	0.2155	0.0133	0.1403	0.0250	
11 Feni	3.10	14.28	15.15	6.99	56.49	0.48	0.0218	0.0583	0.1495	0.0684	0.6894	0.0127	
12 Hatiya	4.66	4.62	17.07	11.19	34.27	4.75	0.0321	0.1480	0.1570	0.0724	0.5855	0.0050	
13 Ishurdi	7.67	9.45	59.56	3.92	385.78	4.56	0.0609	0.0603	0.2230	0.1462	0.4476	0.0620	
14 Jessore	1.09	14.28	30.72	6.87	127.12	0.12	0.0163	0.0201	0.1265	0.0083	0.8192	0.0097	
15 Khepupara	4.14	17.72	31.87	4.87	95.64	1.05	0.0060	0.0792	0.1705	0.0381	0.7055	0.0007	
16 Khulna	10.80	7.38	16.16	3.68	52.35	9.41	0.0267	0.1141	0.2052	0.0314	0.6159	0.0068	
17 Kutubdia	6.89	17.03	74.07	15.43	214.18	12.83	0.1083	0.0740	0.1620	0.0369	0.5246	0.0943	
18 Madaripur	10.96	10.83	20.54	5.16	177.95	4.15	0.0202	0.0500	0.2176	0.0453	0.6291	0.0377	
19 M.Court	5.89	23.24	53.70	7.01	229.80	9.77	0.0179	0.0706	0.1630	0.0213	0.6976	0.0297	
20 Mongla	4.27	10.50	41.33	14.26	152.95	11.96	0.0478	0.0472	0.0895	0.0225	0.7751	0.0181	
21 Mymensingh	10.47	4.97	65.57	12.23	423.52	7.03	0.0181	0.0446	0.1757	0.0606	0.6501	0.0509	
22 Patuakhali	25.48	18.41	34.35	11.37	82.17	13.14	0.0200	0.0095	0.1252	0.0233	0.8086	0.0134	
23 Rajshahi	3.46	10.48	21.48	7.79	56.64	2.90	0.1378	0.0996	0.1857	0.0615	0.4443	0.0711	
24 Rangamati	1.20	10.83	32.27	8.82	159.68	3.02	0.0337	0.1020	0.2090	0.0758	0.5512	0.0282	
25 Rangpur	2.63	15.66	47.47	2.82	182.94	2.92	0.0056	0.0502	0.1495	0.0409	0.7399	0.0140	
26 Sandwip	3.82	13.24	23.11	10.31	54.27	1.90	0.0103	0.0615	0.1866	0.0111	0.7190	0.0115	
27 Satkhira	16.32	27.38	15.02	8.33	16.74	6.95	0.0358	0.1241	0.2166	0.0967	0.5088	0.0178	
28 Shitakunda	10.93	17.72	13.44	0.92	34.00	3.70	0.1798	0.3017	0.1655	0.0918	0.1845	0.0766	
29 Srimongol	7.93	8.07	31.81	5.38	273.23	4.44	0.1354	0.2196	0.1665	0.0114	0.4213	0.0458	
30 Sylhet	2.18	3.93	66.05	9.98	343.37	3.77	0.0240	0.0244	0.0962	0.0163	0.8258	0.0134	
31 Tangail	2.18	3.93	66.05	9.98	343.37	3.77	0.0051	0.0092	0.1539	0.0233	0.7999	0.0088	
32 Teknaf	3.16	10.83	23.03	1.78	76.92	2.54	0.0051	0.0092	0.1539	0.0233	0.7999	0.0088	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	1.6462	2.4774	5.4362	1.3040	19.9287	1.2076	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B79. Determination of Best Fit Distribution
Chi-square values of Wind Speed Data for different probability distributions

							Scaling			Appendix B			
							Rank	3	4	5	1	6	2
March							Comparison	1.11	2.11	3.88	1.00	8.92	1.09
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	<i>5.76</i>	14.62	28.93	6.36	83.93	<i>2.79</i>	0.0404	0.1027	0.2032	0.0447	0.5894	0.0196	
2 Bhola	5.40	10.48	47.11	6.61	330.09	<i>1.35</i>	0.0135	0.0261	0.1175	0.0165	0.8231	0.0034	
3 Bogra	20.10	46.00	326.28	92.89	291.12	1.85E+08	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
4 Chandpur	5.38	19.10	17.94	7.07	58.63	<i>1.22</i>	0.0492	0.1747	0.1641	0.0647	0.5362	0.0111	
5 Chittagong	<i>2.76</i>	15.66	23.75	5.24	15.39	<i>0.32</i>	0.0437	0.2480	0.3763	0.0831	0.2438	0.0051	
6 Comilla	32.62	15.66	55.07	13.84	164.83	19.46	0.1082	0.0519	0.1827	0.0459	0.5468	0.0645	
7 Cox's Bazar	7.51	22.55	46.12	5.26	85.46	<i>4.21</i>	0.0439	0.1318	0.2695	0.0307	0.4994	0.0246	
8 Dhaka	5.04	17.72	33.39	2.05	101.88	<i>1.67</i>	0.0311	0.1096	0.2064	0.0127	0.6298	0.0103	
9 Dinajpur	63.73	33.24	26.31	6.32	16.15	<i>4.39</i>	0.0311	0.1096	0.2064	0.0127	0.6298	0.0103	
10 Faridpur	2.39	8.76	28.72	13.00	65.45	<i>2.51</i>	0.4245	0.2214	0.1752	0.0421	0.1075	0.0292	
11 Feni	20.05	10.83	26.18	4.75	76.46	13.03	0.0198	0.0725	0.2377	0.1076	0.5417	0.0208	
12 Hatiya	4.88	11.17	45.98	10.38	75.80	9.00	0.1326	0.0716	0.1730	0.0314	0.5054	0.0861	
13 Ishurdi	12.06	10.48	60.82	13.30	157.26	6.29	0.0310	0.0711	0.2925	0.0660	0.4822	0.0572	
14 Jessore	4.01	9.45	21.19	2.90	30.34	<i>4.66</i>	0.0463	0.0403	0.2337	0.0511	0.6043	0.0242	
15 Khepupara	9.99	13.93	39.30	14.72	79.13	<i>4.79</i>	0.0552	0.1302	0.2921	0.0400	0.4182	0.0643	
16 Khulna	7.45	23.59	20.42	3.63	16.52	<i>3.42</i>	0.0617	0.0861	0.2428	0.0909	0.4889	0.0296	
17 Kutubdia	5.75	14.97	47.26	9.47	82.55	<i>5.72</i>	0.0994	0.3144	0.2721	0.0484	0.2202	0.0455	
18 Madaripur	8.92	14.28	9.07	4.39	35.52	<i>3.78</i>	0.0347	0.0903	0.2852	0.0571	0.4982	0.0345	
19 M.Court	4.96	17.72	23.35	5.15	49.26	<i>2.24</i>	0.0483	0.1726	0.2274	0.0501	0.4797	0.0218	
20 Mongla	2.48	12.50	35.48	10.41	73.54	<i>4.66</i>	0.1174	0.1879	0.1194	0.0578	0.4676	0.0498	
21 Mymensingh	7.84	8.76	57.62	4.44	236.00	<i>3.06</i>	0.0179	0.0899	0.2551	0.0748	0.5288	0.0335	
22 Patuakhali	7.66	13.93	19.94	2.58	37.67	<i>2.52</i>	0.0247	0.0276	0.1814	0.0140	0.7428	0.0096	
23 Rajshahi	3.11	4.28	22.33	13.90	74.93	<i>3.05</i>	0.0909	0.1652	0.2365	0.0306	0.4468	0.0299	
24 Rangamati	0.34	11.86	31.51	12.45	83.92	<i>5.84</i>	0.0256	0.0352	0.1836	0.1144	0.6162	0.0251	
25 Rangpur	2.89	10.14	49.39	13.64	159.73	<i>1.90</i>	0.0024	0.0813	0.2160	0.0853	0.5751	0.0400	
26 Sandwip	1.08	9.45	13.91	14.26	13.00	<i>0.87</i>	0.0121	0.0427	0.2078	0.0574	0.6720	0.0080	
27 Satkhira	8.67	12.90	9.41	6.25	8.34	<i>4.55</i>	0.0205	0.1797	0.2647	0.2712	0.2474	0.0165	
28 Shitakunda	9.76	23.59	24.13	1.39	25.68	<i>2.52</i>	0.1730	0.2573	0.1878	0.1248	0.1664	0.0908	
29 Srimongol	12.59	28.07	45.02	3.51	157.75	<i>5.12</i>	0.1121	0.2709	0.2771	0.0160	0.2949	0.0289	
30 Sylhet	1.43	11.86	92.24	2.77	369.33	<i>1.90</i>	0.0499	0.1114	0.1786	0.0139	0.6259	0.0203	
31 Tangail	1.43	11.86	92.24	2.77	369.33	<i>1.90</i>	0.0030	0.0247	0.1924	0.0058	0.7702	0.0040	
32 Teknaf	1.77	10.48	35.72	20.26	80.42	<i>12.63</i>	0.0030	0.0247	0.1924	0.0058	0.7702	0.0040	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	1.9672	3.7234	6.8506	1.7674	15.7689	1.9226	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B80. Determination of Best Fit Distribution
Chi-square values of Wind Speed Data for different probability distributions

							Scaling					Appendix B	
							Rank	3	4	5	2	6	1
							Comparison	2.16	3.09	8.74	1.57	14.41	1.00
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	5.39	7.03	52.51	3.26	169.31	5.68	0.0222	0.0289	0.2159	0.0134	0.6962	0.0234	
2 Bhola	78.70	36.34	45.78	4.30	42.68	5.82	0.3684	0.1701	0.2143	0.0201	0.1998	0.0272	
3 Bogra	8.97	4.62	235.06	8.55	419.81	16.51	0.0129	0.0067	0.3389	0.0123	0.6053	0.0238	
4 Chandpur	6.43	2.21	23.65	8.33	100.94	5.10	0.0438	0.0150	0.1613	0.0568	0.6883	0.0348	
5 Chittagong	10.10	2.55	19.61	14.62	12.19	6.08	0.1550	0.0392	0.3010	0.2244	0.1871	0.0934	
6 Comilla	20.95	21.86	56.78	4.99	90.21	10.53	0.1020	0.1065	0.2765	0.0243	0.4394	0.0513	
7 Cox's Bazar	4.65	6.34	30.01	6.60	46.35	2.35	0.0482	0.0659	0.3116	0.0685	0.4813	0.0244	
8 Dhaka	2.59	10.83	34.06	3.42	66.90	0.74	0.0219	0.0913	0.2873	0.0288	0.5644	0.0063	
9 Dinajpur	35.95	30.48	28.62	1.47	29.05	4.41	0.0219	0.0913	0.2873	0.0288	0.5644	0.0063	
10 Faridpur	1.90	10.83	31.61	2.71	38.26	0.62	0.2766	0.2345	0.2202	0.0113	0.2235	0.0340	
11 Feni	5.68	5.31	26.98	1.99	72.31	3.36	0.0221	0.1260	0.3679	0.0316	0.4452	0.0072	
12 Hatiya	6.20	5.31	21.90	6.04	18.98	5.19	0.0491	0.0459	0.2333	0.0172	0.6253	0.0290	
13 Ishurdi	6.15	17.38	34.28	2.48	25.45	3.41	0.0974	0.0835	0.3443	0.0949	0.2983	0.0815	
14 Jessore	2.41	6.69	26.54	3.61	16.35	2.16	0.0690	0.1950	0.3846	0.0278	0.2855	0.0382	
15 Khepupara	5.69	12.90	51.27	3.47	17.06	2.02	0.0417	0.1158	0.4595	0.0625	0.2831	0.0373	
16 Khulna	14.86	28.76	40.59	3.27	31.19	7.30	0.0386	0.0875	0.3478	0.0235	0.4889	0.0137	
17 Kutubdia	9.06	1.86	33.80	8.90	74.29	5.49	0.1180	0.2283	0.3222	0.0260	0.2476	0.0580	
18 Madaripur	11.73	16.00	27.78	3.69	68.95	5.35	0.0679	0.0140	0.2534	0.0667	0.5569	0.0412	
19 M.Court	2.04	9.45	29.84	2.07	80.01	1.69	0.0163	0.0755	0.2385	0.0165	0.6396	0.0135	
20 Mongla	7.82	5.00	48.60	27.62	132.58	9.07	0.0879	0.1199	0.2081	0.0276	0.5165	0.0400	
21 Mymensingh	3.02	15.66	69.47	2.57	149.12	1.40	0.0339	0.0217	0.2107	0.1197	0.5747	0.0393	
22 Patuakhali	6.30	4.62	20.85	2.71	35.31	2.81	0.0125	0.0649	0.2880	0.0107	0.6181	0.0058	
23 Rajshahi	2.27	12.55	25.31	2.68	25.26	0.50	0.0868	0.0636	0.2872	0.0373	0.4863	0.0387	
24 Rangamati	6.09	30.14	45.31	4.94	55.47	3.97	0.0331	0.1831	0.3691	0.0390	0.3684	0.0074	
25 Rangpur	6.08	12.90	64.50	6.63	114.57	6.58	0.0417	0.2066	0.3105	0.0338	0.3801	0.0272	
26 Sandwip	3.55	3.59	15.08	8.67	14.83	3.48	0.0288	0.0610	0.3053	0.0314	0.5423	0.0312	
27 Satkhira	10.83	24.62	23.92	17.01	11.04	5.03	0.0721	0.0729	0.3066	0.1762	0.3015	0.0707	
28 Shitakunda	8.35	11.86	25.09	4.82	46.46	3.38	0.1172	0.2663	0.2587	0.1840	0.1194	0.0544	
29 Srimongol	3.37	17.38	34.80	4.53	92.51	3.80	0.0835	0.1187	0.2510	0.0482	0.4648	0.0339	
30 Sylhet	2.46	10.83	62.81	4.35	196.79	2.24	0.0215	0.1111	0.2225	0.0290	0.5916	0.0243	
31 Tangail	2.46	10.83	62.81	4.35	196.79	2.24	0.0088	0.0387	0.2247	0.0156	0.7042	0.0080	
32 Teknaf	5.87	28.07	33.01	8.32	59.83	1.50	0.0088	0.0387	0.2247	0.0156	0.7042	0.0080	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	2.2297	3.1882	9.0330	1.6237	14.8922	1.0333	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B81. Determination of Best Fit Distribution
Chi-square values of Wind Speed Data for different probability distributions
May

							Scaling				Appendix B		
							Rank	3	4	5	2	6	1
							Comparison	2.31	3.83	9.08	1.43	14.56	1.00
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	4.89	5.31	29.51	3.58	95.00	4.59	0.0342	0.0372	0.2065	0.0251	0.6649	0.0321	
2 Bhola	9.16	23.93	35.02	2.04	80.28	2.89	0.0597	0.1561	0.2284	0.0133	0.5236	0.0188	
3 Bogra	6.95	14.28	121.42	5.80	94.71	39.42	0.0246	0.0505	0.4297	0.0205	0.3352	0.1395	
4 Chandpur	6.50	7.38	29.99	19.18	95.51	6.29	0.0394	0.0448	0.1819	0.1163	0.5794	0.0382	
5 Chittagong	7.31	14.62	45.61	14.45	20.66	11.06	0.0643	0.1286	0.4011	0.1271	0.1817	0.0972	
6 Comilla	5.40	20.48	40.60	2.85	38.26	1.57	0.0494	0.1876	0.3719	0.0261	0.3505	0.0144	
7 Cox's Bazar	11.66	1.86	32.30	8.40	65.85	8.33	0.0908	0.0145	0.2515	0.0654	0.5129	0.0649	
8 Dhaka	3.95	14.28	42.84	4.82	100.39	0.62	0.0236	0.0855	0.2567	0.0289	0.6015	0.0037	
9 Dinajpur	389.14	44.28	65.43	5.29	63.91	8.53	0.0236	0.0855	0.2567	0.0289	0.6015	0.0037	
10 Faridpur	6.13	8.76	28.20	2.02	39.67	3.03	0.6749	0.0768	0.1135	0.0092	0.1108	0.0148	
11 Feni	4.22	3.24	18.02	5.51	45.09	3.88	0.0698	0.0997	0.3212	0.0230	0.4518	0.0345	
12 Hatiya	15.96	20.14	53.94	3.96	39.27	5.75	0.0527	0.0405	0.2254	0.0689	0.5639	0.0485	
13 Ishurdi	10.66	14.97	35.43	1.82	33.01	5.37	0.1148	0.1449	0.3880	0.0285	0.2825	0.0414	
14 Jessore	11.58	10.14	41.07	10.01	39.41	6.50	0.1052	0.1478	0.3499	0.0180	0.3260	0.0531	
15 Khepupara	7.26	13.24	27.73	6.46	19.02	2.09	0.0976	0.0854	0.3460	0.0843	0.3320	0.0547	
16 Khulna	1.57	10.83	15.47	1.91	10.80	0.20	0.0958	0.1747	0.3658	0.0852	0.2509	0.0275	
17 Kutubdia	1.78	7.03	40.32	0.92	84.61	1.18	0.0385	0.2655	0.3793	0.0469	0.2648	0.0050	
18 Madaripur	9.55	22.21	14.68	3.58	15.74	4.09	0.0131	0.0518	0.2968	0.0068	0.6229	0.0087	
19 M.Court	2.88	6.34	41.35	4.59	142.72	1.95	0.0144	0.0318	0.2069	0.0230	0.7142	0.0098	
20 Mongla	1.49	4.00	26.16	2.28	54.36	2.62	0.1367	0.3180	0.2102	0.0512	0.2254	0.0585	
21 Mymensingh	0.85	6.69	47.28	3.10	100.58	3.16	0.0164	0.0440	0.2877	0.0250	0.5980	0.0288	
22 Patuakhali	2.04	12.90	21.83	4.60	16.12	0.39	0.0053	0.0414	0.2924	0.0192	0.6222	0.0196	
23 Rajshahi	7.03	22.90	24.04	6.07	12.35	2.49	0.0352	0.2228	0.3772	0.0795	0.2785	0.0068	
24 Rangamati	12.48	14.28	38.89	7.28	80.38	7.02	0.0939	0.3058	0.3211	0.0811	0.1650	0.0332	
25 Rangpur	8.40	3.24	42.26	8.16	143.73	6.91	0.0779	0.0890	0.2426	0.0454	0.5014	0.0438	
26 Sandwip	3.05	14.28	32.04	14.72	38.62	0.49	0.0395	0.0152	0.1987	0.0384	0.6758	0.0325	
27 Satkhira	3.83	17.72	12.60	0.42	3.51	0.47	0.0296	0.1383	0.3105	0.1426	0.3743	0.0047	
28 Shitakunda	5.82	19.10	39.16	4.34	60.00	1.56	0.0993	0.4596	0.3268	0.0110	0.0910	0.0123	
29 Srimongol	0.68	12.55	37.84	5.84	156.27	2.79	0.0448	0.1470	0.3013	0.0334	0.4616	0.0120	
30 Sylhet	5.38	14.28	93.47	4.50	345.64	4.27	0.0031	0.0581	0.1752	0.0270	0.7236	0.0129	
31 Tangail	5.38	14.28	93.47	4.50	345.64	4.27	0.0115	0.0305	0.1999	0.0096	0.7393	0.0091	
32 Teknaf	1.16	8.76	26.79	16.41	102.53	1.00	0.0115	0.0305	0.1999	0.0096	0.7393	0.0091	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	2.2913	3.8095	9.0208	1.4185	14.4662	0.9937	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B82. Determination of Best Fit Distribution
Chi-square values of Wind Speed Data for different probability distributions
June

							Scaling					Appendix B	
							Rank	3	4	5	2	6	1
							Comparison	1.89	2.72	8.60	1.50	16.61	1.00
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	9.83	11.86	58.25	1.24	218.03	4.56	0.0324	0.0390	0.1917	0.0041	0.7177	0.0150	
2 Bhola	4.37	12.90	81.42	0.87	542.57	1.74	0.0068	0.0200	0.1264	0.0013	0.8427	0.0027	
3 Bogra	2.61	4.62	88.32	10.07	119.29	1.59	0.0115	0.0204	0.3899	0.0445	0.5267	0.0070	
4 Chandpur	6.43	28.07	48.01	3.17	160.33	1.48	0.0260	0.1134	0.1940	0.0128	0.6478	0.0060	
5 Chittagong	14.17	7.38	42.70	14.34	17.70	27.45	0.1146	0.0596	0.3451	0.1159	0.1430	0.2218	
6 Comilla	10.04	19.10	88.25	1.31	175.42	6.12	0.0334	0.0636	0.2939	0.0044	0.5843	0.0204	
7 Cox's Bazar	5.28	3.93	58.00	16.63	114.78	8.16	0.0255	0.0190	0.2805	0.0804	0.5551	0.0395	
8 Dhaka	2.07	6.34	52.45	7.63	155.69	9.50	0.0088	0.0272	0.2244	0.0326	0.6662	0.0407	
9 Dinajpur	208.19	38.41	53.22	11.47	49.06	6.29	0.0088	0.0272	0.2244	0.0326	0.6662	0.0407	
10 Faridpur	5.19	4.97	25.61	7.04	49.11	2.49	0.5678	0.1048	0.1451	0.0313	0.1338	0.0171	
11 Feni	4.09	23.24	51.27	6.42	96.16	0.73	0.0550	0.0526	0.2713	0.0745	0.5203	0.0264	
12 Hatiya	1.88	5.66	59.99	5.17	102.99	4.04	0.0225	0.1278	0.2819	0.0353	0.5286	0.0040	
13 Ishurdi	6.70	17.38	35.51	1.26	35.44	1.26	0.0104	0.0315	0.3338	0.0288	0.5731	0.0225	
14 Jessore	4.21	9.10	61.95	3.68	93.33	5.81	0.0687	0.1781	0.3640	0.0130	0.3633	0.0129	
15 Khepupara	7.71	11.52	42.92	7.47	38.77	5.68	0.0236	0.0511	0.3479	0.0207	0.5241	0.0326	
16 Khulna	7.22	13.24	19.23	1.66	23.30	2.02	0.0676	0.1010	0.3763	0.0655	0.3399	0.0498	
17 Kutubdia	6.72	5.66	76.46	5.61	196.29	6.26	0.1082	0.1986	0.2885	0.0249	0.3495	0.0304	
18 Madaripur	17.42	13.59	23.59	6.11	80.91	9.30	0.0226	0.0190	0.2575	0.0189	0.6609	0.0211	
19 M.Court	2.30	19.10	72.51	1.31	138.94	4.83	0.0096	0.0799	0.3034	0.0055	0.5814	0.0202	
20 Mongla	0.13	9.00	36.55	5.52	73.86	3.22	0.1155	0.0900	0.1563	0.0405	0.5361	0.0616	
21 Mymensingh	1.52	10.83	47.03	6.72	80.57	0.38	0.0010	0.0702	0.2850	0.0430	0.5758	0.0251	
22 Patuakhali	0.87	7.38	22.81	3.52	33.08	1.16	0.0104	0.0736	0.3198	0.0457	0.5479	0.0026	
23 Rajshahi	27.08	31.52	31.80	4.20	13.35	3.91	0.0126	0.1072	0.3314	0.0512	0.4807	0.0169	
24 Rangamati	7.38	21.86	34.72	6.38	45.26	2.43	0.2421	0.2818	0.2843	0.0375	0.1194	0.0349	
25 Rangpur	2.95	14.97	56.85	3.74	128.14	0.36	0.0626	0.1852	0.2941	0.0541	0.3834	0.0206	
26 Sandwip	3.80	23.59	55.04	72.01	42.02	7.31	0.0143	0.0723	0.2746	0.0181	0.6190	0.0017	
27 Satkhira	5.08	8.76	13.69	5.47	6.37	4.25	0.0186	0.1157	0.2701	0.3534	0.2062	0.0359	
28 Shitakunda	5.95	15.31	53.98	1.98	134.48	1.28	0.1164	0.2008	0.3139	0.1253	0.1461	0.0975	
29 Srimongol	13.41	44.28	110.98	11.47	415.70	25.08	0.0279	0.0719	0.2535	0.0093	0.6314	0.0060	
30 Sylhet	1.53	4.62	66.90	8.59	348.12	3.47	0.0216	0.0713	0.1787	0.0185	0.6695	0.0404	
31 Tangail	1.53	4.62	66.90	8.59	348.12	3.47	0.0035	0.0107	0.1544	0.0198	0.8036	0.0080	
32 Teknaf	7.73	14.28	29.11	3.72	63.05	2.45	0.0035	0.0107	0.1544	0.0198	0.8036	0.0080	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	1.8740	2.6953	8.5106	1.4831	16.4472	0.9899	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B83. Determination of Best Fit Distribution
Chi-square values of Wind Speed Data for different probability distributions
July

							Scaling					Appendix B	
							Rank	2	4	5	3	6	1
							Comparison	1.19	2.83	8.61	1.52	16.87	1.00
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	3.38	13.24	74.19	2.05	307.74	1.70	0.0084	0.0329	0.1844	0.0051	0.7650	0.0042	
2 Bhola	5.86	10.48	107.52	10.71	565.16	2.13	0.0084	0.0149	0.1532	0.0153	0.8052	0.0030	
3 Bogra	4.63	6.34	63.24	2.78	69.97	7.52	0.0300	0.0411	0.4093	0.0180	0.4529	0.0487	
4 Chandpur	6.92	3.59	51.58	12.25	323.33	5.06	0.0172	0.0089	0.1281	0.0304	0.8029	0.0126	
5 Chittagong	19.52	10.83	47.70	43.23	24.95	21.65	0.1163	0.0645	0.2842	0.2575	0.1486	0.1289	
6 Comilla	13.84	13.59	61.02	7.93	98.35	7.10	0.0686	0.0673	0.3023	0.0393	0.4873	0.0352	
7 Cox's Bazar	6.39	3.24	51.53	11.54	105.04	8.18	0.0344	0.0174	0.2772	0.0621	0.5650	0.0440	
8 Dhaka	10.07	4.62	55.26	18.73	175.98	17.00	0.0358	0.0164	0.1962	0.0665	0.6248	0.0604	
9 Dinajpur	3.86	60.83	66.17	7.08	27.75	9.51	0.0358	0.0164	0.1962	0.0665	0.6248	0.0604	
10 Faridpur	1.69	6.34	32.21	5.68	51.87	3.24	0.0220	0.3472	0.3777	0.0404	0.1584	0.0543	
11 Feni	1.73	4.97	46.53	3.56	135.55	5.65	0.0167	0.0628	0.3188	0.0563	0.5134	0.0320	
12 Hatiya	1.01	9.79	74.43	1.58	131.62	4.57	0.0087	0.0251	0.2350	0.0180	0.6847	0.0285	
13 Ishurdi	4.71	16.69	38.59	8.31	44.17	0.80	0.0045	0.0439	0.3337	0.0071	0.5902	0.0205	
14 Jessore	1.32	7.03	42.91	0.95	64.20	2.80	0.0416	0.1473	0.3407	0.0734	0.3899	0.0071	
15 Khepupara	2.23	9.10	42.57	5.81	63.43	0.65	0.0111	0.0590	0.3599	0.0080	0.5385	0.0235	
16 Khulna	3.87	17.72	24.17	0.45	21.36	0.81	0.0180	0.0735	0.3438	0.0470	0.5124	0.0053	
17 Kutubdia	1.16	6.69	54.04	5.12	94.09	2.62	0.0567	0.2592	0.3534	0.0066	0.3124	0.0118	
18 Madaripur	1.63	9.45	16.14	4.43	39.91	0.97	0.0071	0.0409	0.3300	0.0313	0.5747	0.0160	
19 M.Court	1.61	16.69	80.55	1.05	242.86	0.75	0.0047	0.0486	0.2345	0.0031	0.7070	0.0022	
20 Mongla	5.58	11.50	46.78	4.27	87.45	5.79	0.0225	0.1302	0.2225	0.0611	0.5502	0.0134	
21 Mymensingh	2.11	9.10	54.12	7.09	97.87	3.01	0.0346	0.0713	0.2899	0.0265	0.5419	0.0359	
22 Patuakhali	4.44	7.38	24.13	8.71	34.80	2.33	0.0122	0.0525	0.3123	0.0409	0.5647	0.0174	
23 Rajshahi	21.70	46.00	54.60	2.38	20.30	5.10	0.0543	0.0902	0.2950	0.1065	0.4255	0.0285	
24 Rangamati	22.20	37.03	42.88	5.51	58.14	5.44	0.1446	0.3065	0.3638	0.0158	0.1353	0.0340	
25 Rangpur	1.68	12.90	55.88	3.76	184.59	0.44	0.1297	0.2163	0.2505	0.0322	0.3396	0.0318	
26 Sandwip	1.65	11.86	52.38	20.45	75.00	9.57	0.0065	0.0497	0.2155	0.0145	0.7120	0.0017	
27 Satkhira	11.18	19.79	12.60	9.39	10.93	4.46	0.0097	0.0694	0.3065	0.1196	0.4388	0.0560	
28 Shitakunda	2.78	8.07	36.07	6.56	65.74	3.64	0.1636	0.2895	0.1843	0.1374	0.1599	0.0653	
29 Srimongol	9.80	26.00	77.19	13.08	354.24	32.98	0.0226	0.0657	0.2936	0.0534	0.5351	0.0296	
30 Sylhet	3.65	9.45	66.68	5.64	277.65	4.25	0.0191	0.0507	0.1504	0.0255	0.6901	0.0642	
31 Tangail	3.65	9.45	66.68	5.64	277.65	4.25	0.0099	0.0257	0.1815	0.0154	0.7559	0.0116	
32 Teknaf	9.50	16.34	28.80	1.12	72.20	3.39	0.0099	0.0257	0.1815	0.0154	0.7559	0.0116	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	1.1850	2.8309	8.6060	1.5158	16.8628	0.9994	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B84. Determination of Best Fit Distribution
Chi-square values of Wind Speed Data for different probability distributions
August

							Scaling					Appendix B	
							Rank	2	4	5	3	6	1
							Comparison	1.24	2.34	7.60	1.87	17.02	1.00
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	2.78	3.93	79.00	7.05	476.77	3.33	0.0049	0.0069	0.1379	0.0123	0.8323	0.0058	
2 Bhola	16.61	28.07	137.29	3.30	1011.23	14.76	0.0137	0.0232	0.1133	0.0027	0.8349	0.0122	
3 Bogra	6.39	7.72	89.41	7.01	98.72	10.70	0.0291	0.0351	0.4065	0.0319	0.4488	0.0487	
4 Chandpur	6.53	9.45	35.49	7.70	162.28	3.66	0.0290	0.0420	0.1577	0.0342	0.7209	0.0163	
5 Chittagong	12.36	8.07	44.63	25.92	21.44	22.01	0.0920	0.0600	0.3320	0.1928	0.1595	0.1638	
6 Comilla	8.57	20.83	81.94	1.64	159.05	8.24	0.0306	0.0743	0.2924	0.0059	0.5675	0.0294	
7 Cox's Bazar	5.71	3.93	59.33	19.41	147.53	5.68	0.0236	0.0163	0.2456	0.0803	0.6107	0.0235	
8 Dhaka	2.78	13.59	45.63	12.22	116.56	6.58	0.0141	0.0688	0.2312	0.0619	0.5906	0.0333	
9 Dinajpur	9.03	8.76	36.96	11.13	176.36	6.83	0.0141	0.0688	0.2312	0.0619	0.5906	0.0333	
10 Faridpur	5.12	18.41	31.01	3.39	29.13	3.52	0.0362	0.0352	0.1484	0.0447	0.7081	0.0274	
11 Feni	3.27	11.86	39.40	4.37	96.96	1.03	0.0565	0.2033	0.3423	0.0375	0.3216	0.0388	
12 Hatiya	4.97	9.10	50.94	5.74	94.28	4.66	0.0209	0.0756	0.2511	0.0279	0.6180	0.0066	
13 Ishurdi	8.36	10.48	37.17	13.23	90.14	3.47	0.0293	0.0536	0.3002	0.0338	0.5556	0.0275	
14 Jessore	1.97	6.69	38.02	4.96	68.84	1.45	0.0513	0.0644	0.2282	0.0812	0.5536	0.0213	
15 Khepupara	4.16	5.66	41.14	10.41	62.48	4.74	0.0161	0.0549	0.3118	0.0407	0.5646	0.0119	
16 Khulna	4.23	12.55	18.29	4.92	14.27	2.54	0.0323	0.0440	0.3200	0.0810	0.4859	0.0368	
17 Kutubdia	3.54	21.17	67.32	3.31	98.37	2.11	0.0745	0.2209	0.3220	0.0866	0.2512	0.0447	
18 Madaripur	3.63	18.76	34.45	6.74	54.76	6.02	0.0181	0.1081	0.3438	0.0169	0.5023	0.0108	
19 M.Court	9.12	21.86	61.65	2.56	129.76	3.07	0.0400	0.0959	0.2704	0.0112	0.5691	0.0135	
20 Mongla	2.99	4.00	38.05	3.74	130.79	2.50	0.0292	0.1509	0.2770	0.0542	0.4403	0.0484	
21 Mymensingh	4.48	7.38	39.85	3.50	108.23	3.33	0.0164	0.0220	0.2090	0.0205	0.7184	0.0137	
22 Patuakhali	4.80	8.76	19.84	2.21	36.90	1.22	0.0269	0.0442	0.2390	0.0210	0.6490	0.0200	
23 Rajshahi	11.60	9.10	33.39	10.19	59.60	5.57	0.0651	0.1188	0.2691	0.0299	0.5006	0.0165	
24 Rangamati	31.62	57.38	61.63	11.88	97.08	19.96	0.0896	0.0703	0.2580	0.0787	0.4604	0.0430	
25 Rangpur	7.78	8.76	53.64	4.29	211.57	6.73	0.1131	0.2053	0.2205	0.0425	0.3473	0.0714	
26 Sandwip	0.83	17.38	41.03	82.57	38.01	3.34	0.0266	0.0299	0.1832	0.0147	0.7226	0.0230	
27 Satkhira	14.14	11.52	11.01	9.12	14.64	5.87	0.0045	0.0949	0.2240	0.4508	0.2075	0.0182	
28 Shitakunda	3.50	8.76	37.91	9.54	70.67	4.71	0.2133	0.1737	0.1660	0.1376	0.2208	0.0886	
29 Srimongol	3.70	6.69	39.23	10.20	294.55	2.61	0.0259	0.0648	0.2806	0.0706	0.5231	0.0349	
30 Sylhet	6.55	14.97	87.59	7.05	307.37	8.50	0.0104	0.0187	0.1099	0.0286	0.8251	0.0073	
31 Tangail	6.55	14.97	87.59	7.05	307.37	8.50	0.0152	0.0346	0.2027	0.0163	0.7115	0.0197	
32 Teknaf	8.86	28.41	37.01	5.34	73.82	4.09	0.0152	0.0346	0.2027	0.0163	0.7115	0.0197	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	1.2775	2.4141	7.8278	1.9272	17.5236	1.0299	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B85. Determination of Best Fit Distribution
Chi-square values of Wind Speed Data for different probability distributions
September

		Scaling						Appendix B					
Rank		2	4	5	3	6	1						
Comparison		1.31	2.66	7.63	1.63	22.57	1.00						
Station		Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1	Barisal	3.02	9.10	76.85	5.92	627.30	11.20	0.0041	0.0124	0.1048	0.0081	0.8553	0.0153
2	Bhola	2.29	11.86	48.91	6.33	425.49	0.45	0.0046	0.0239	0.0987	0.0128	0.8590	0.0009
3	Bogra	1.43	7.72	79.20	6.92	76.76	8.85	0.0079	0.0427	0.4378	0.0383	0.4243	0.0489
4	Chandpur	9.84	4.28	28.62	8.25	274.95	5.22	0.0297	0.0129	0.0864	0.0249	0.8303	0.0158
5	Chittagong	7.81	13.24	45.69	12.03	32.77	17.69	0.0604	0.1025	0.3535	0.0931	0.2536	0.1369
6	Cornilla	8.20	16.34	52.94	15.64	81.15	5.64	0.0456	0.0909	0.2942	0.0869	0.4511	0.0313
7	Cox's Bazar	1.44	4.97	48.11	7.51	156.51	3.08	0.0065	0.0224	0.2171	0.0339	0.7062	0.0139
8	Dhaka	3.31	11.52	41.81	6.28	179.53	3.38	0.0135	0.0469	0.1701	0.0255	0.7303	0.0138
9	Dinajpur	4.29	23.93	47.68	1.97	195.97	1.99	0.0135	0.0469	0.1701	0.0255	0.7303	0.0138
10	Faridpur	8.12	8.76	28.93	7.44	78.70	3.69	0.0156	0.0868	0.1728	0.0071	0.7105	0.0072
11	Feni	1.62	9.45	33.33	9.04	116.01	1.72	0.0599	0.0646	0.2133	0.0548	0.5802	0.0272
12	Hatiya	2.05	5.31	44.98	5.41	137.21	4.18	0.0095	0.0552	0.1947	0.0528	0.6777	0.0100
13	Ishurdi	7.75	19.45	40.48	1.23	75.31	2.71	0.0103	0.0267	0.2259	0.0272	0.6890	0.0210
14	Jessore	4.09	6.69	35.96	8.71	81.34	4.03	0.0528	0.1324	0.2755	0.0083	0.5126	0.0184
15	Khepupara	4.46	10.14	26.68	4.54	54.39	3.56	0.0291	0.0475	0.2553	0.0618	0.5776	0.0286
16	Khulna	5.63	10.83	22.21	4.51	44.48	2.95	0.0430	0.0977	0.2571	0.0437	0.5242	0.0343
17	Kutubdia	5.02	17.38	61.79	5.99	132.66	6.84	0.0622	0.1195	0.2451	0.0498	0.4909	0.0326
18	Madaripur	4.76	12.90	28.06	3.27	104.47	2.84	0.0219	0.0757	0.2690	0.0261	0.5776	0.0298
19	M.Court	4.74	8.41	28.16	4.37	103.16	4.30	0.0309	0.0549	0.1839	0.0285	0.6736	0.0281
20	Mongla	2.84	2.50	32.90	6.91	137.75	1.51	0.0305	0.0825	0.1795	0.0209	0.6684	0.0182
21	Mymensingh	5.00	19.45	59.82	6.68	142.05	2.29	0.0154	0.0136	0.1784	0.0375	0.7470	0.0082
22	Patuakhali	7.29	16.34	21.72	9.96	38.69	4.17	0.0213	0.0827	0.2542	0.0284	0.6037	0.0098
23	Rajshahi	6.15	8.76	24.48	7.73	55.25	3.47	0.0743	0.1665	0.2212	0.1015	0.3941	0.0425
24	Rangamati	14.67	22.55	24.86	10.56	67.61	6.70	0.0581	0.0828	0.2313	0.0730	0.5220	0.0327
25	Rangpur	33.64	9.79	100.79	21.70	532.66	20.36	0.0998	0.1535	0.1692	0.0719	0.4601	0.0456
26	Sandwip	1.44	15.31	50.43	2.93	142.48	2.73	0.0468	0.0136	0.1402	0.0302	0.7409	0.0283
27	Satkhira	12.01	19.10	9.75	7.23	13.40	4.49	0.0067	0.0711	0.2342	0.0136	0.6617	0.0127
28	Shitakunda	8.52	20.14	46.27	13.18	96.87	8.45	0.1821	0.2895	0.1477	0.1096	0.2031	0.0680
29	Srimongol	7.85	1.86	20.12	29.23	204.55	6.17	0.0440	0.1041	0.2392	0.0681	0.5008	0.0437
30	Sylhet	1.84	14.28	56.75	6.87	250.27	1.52	0.0291	0.0069	0.0746	0.1083	0.7582	0.0229
31	Tangail	1.84	14.28	56.75	6.87	250.27	1.52	0.0055	0.0431	0.1712	0.0207	0.7549	0.0046
32	Teknaf	3.71	6.69	26.87	6.60	161.70	3.51	0.0055	0.0431	0.1712	0.0207	0.7549	0.0046
Critical Chi Square Value (95% Confidence Level)		5.99	5.99	7.81	5.99	7.81	5.99	1.1399	2.3151	6.6377	1.4137	19.6242	0.8694

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B86. Determination of Best Fit Distribution
Chi-square values of Wind Speed Data for different probability distributions
October

							Scaling					Appendix B	
							Rank	3	4	5	2	6	1
							Comparison	1.80	3.08	5.74	1.37	21.09	1.00
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	8.21	6.00	21.28	40.34	302.82	3.93	0.0215	0.0157	0.0556	0.1054	0.7915	0.0103	
2 Bhola	5.81	14.62	51.39	22.81	685.07	7.53	0.0074	0.0186	0.0653	0.0290	0.8702	0.0096	
3 Bogra	2.48	8.76	104.33	4.17	81.37	5.04	0.0120	0.0425	0.5061	0.0202	0.3947	0.0245	
4 Chandpur	21.14	7.38	23.31	33.36	176.93	12.48	0.0770	0.0269	0.0849	0.1215	0.6443	0.0454	
5 Chittagong	13.48	10.48	37.02	15.95	65.61	10.53	0.0881	0.0685	0.2419	0.1042	0.4286	0.0688	
6 Comilla	9.27	20.48	22.53	1.74	66.22	1.40	0.0762	0.1684	0.1852	0.0143	0.5444	0.0115	
7 Cox's Bazar	2.74	8.07	30.70	6.79	113.48	1.40	0.0168	0.0494	0.1881	0.0416	0.6954	0.0086	
8 Dhaka	7.13	16.34	36.14	3.30	299.65	2.26	0.0195	0.0448	0.0991	0.0090	0.8214	0.0062	
9 Dinajpur	19.06	18.41	25.80	3.03	91.33	5.09	0.0195	0.0448	0.0991	0.0090	0.8214	0.0062	
10 Faridpur	6.22	16.00	22.32	4.66	87.67	2.25	0.1171	0.1132	0.1585	0.0186	0.5613	0.0313	
11 Feni	1.81	12.21	43.78	4.13	293.56	2.46	0.0447	0.1150	0.1604	0.0335	0.6301	0.0162	
12 Hatiya	3.85	18.07	24.53	1.77	40.82	1.52	0.0051	0.0341	0.1223	0.0115	0.8201	0.0069	
13 Ishurdi	3.59	6.69	42.13	5.50	282.10	7.00	0.0425	0.1995	0.2709	0.0195	0.4507	0.0168	
14 Jessore	8.21	11.86	29.69	17.53	143.38	4.30	0.0103	0.0193	0.1214	0.0159	0.8130	0.0202	
15 Khepupara	10.71	26.00	32.99	5.19	121.46	3.97	0.0382	0.0552	0.1381	0.0815	0.6670	0.0200	
16 Khulna	16.08	33.24	40.34	6.31	95.48	8.33	0.0535	0.1298	0.1647	0.0259	0.6063	0.0198	
17 Kutubdia	2.67	8.07	27.70	7.77	100.88	2.62	0.0805	0.1664	0.2019	0.0316	0.4779	0.0417	
18 Madaripur	8.91	19.79	26.47	8.23	73.52	5.37	0.0178	0.0539	0.1850	0.0519	0.6739	0.0175	
19 M.Court	34.45	10.14	83.79	23.53	648.53	32.56	0.0414	0.0122	0.1006	0.0282	0.7785	0.0391	
20 Mongla	2.44	12.00	39.93	13.24	107.45	15.01	0.0626	0.1391	0.1860	0.0578	0.5167	0.0377	
21 Mymensingh	16.00	20.48	45.80	1.24	153.92	3.45	0.0129	0.0631	0.2101	0.0696	0.5653	0.0790	
22 Patuakhali	4.17	8.41	16.58	9.53	58.11	5.34	0.0664	0.0850	0.1901	0.0052	0.6389	0.0143	
23 Rajshahi	6.53	9.10	16.10	6.59	79.41	4.01	0.0408	0.0824	0.1623	0.0933	0.5689	0.0522	
24 Rangamati	21.37	33.24	31.31	6.04	103.20	11.25	0.0537	0.0748	0.1323	0.0541	0.6522	0.0329	
25 Rangpur	1.00	8.41	26.87	3.23	113.10	3.20	0.1035	0.1611	0.1517	0.0293	0.5000	0.0545	
26 Sandwip	7.03	24.97	38.52	2.65	128.44	1.01	0.0064	0.0540	0.1725	0.0207	0.7259	0.0205	
27 Satkhira	15.73	17.03	10.06	3.34	15.25	7.18	0.0347	0.1232	0.1901	0.0131	0.6339	0.0050	
28 Shitakunda	26.34	38.76	22.91	2.05	27.52	3.81	0.2293	0.2484	0.1466	0.0487	0.2223	0.1047	
29 Srimongol	10.67	7.38	24.90	17.48	137.81	12.84	0.2170	0.3193	0.1887	0.0169	0.2267	0.0314	
30 Sylhet	4.85	26.69	80.27	3.90	290.88	5.27	0.0506	0.0350	0.1179	0.0828	0.6529	0.0608	
31 Tangail	4.85	26.69	80.27	3.90	290.88	5.27	0.0118	0.0648	0.1949	0.0095	0.7062	0.0128	
32 Teknaf	6.01	12.21	27.15	3.86	142.21	3.15	0.0118	0.0648	0.1949	0.0095	0.7062	0.0128	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	1.6905	2.8930	5.3873	1.2830	19.8072	0.9391	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B87. Determination of Best Fit Distribution
Chi-square values of Wind Speed Data for different probability distributions
November

								Scaling						Appendix B
								Rank	3	4	5	2	6	1
								Comparison	2.58	4.69	6.31	1.96	26.46	1.00
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I		Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	8.04	12.21	8.50	22.81	133.00	4.62		0.0425	0.0645	0.0450	0.1206	0.7030	0.0244	
2 Bhola	10.44	28.07	24.75	20.92	418.82	7.79		0.0204	0.0550	0.0484	0.0410	0.8199	0.0153	
3 Bogra	0.73	11.86	157.89	3.24	160.92	3.61		0.0022	0.0351	0.4668	0.0096	0.4757	0.0107	
4 Chandpur	8.89	17.38	15.60	11.16	95.15	2.17		0.0591	0.1156	0.1038	0.0742	0.6328	0.0144	
5 Chittagong	1.62	4.28	13.79	2.41	32.28	2.21		0.0287	0.0756	0.2436	0.0426	0.5705	0.0390	
6 Comilla	26.71	29.10	36.72	1.89	121.47	4.77		0.1211	0.1319	0.1664	0.0086	0.5505	0.0216	
7 Cox's Bazar	5.81	1.52	27.83	19.80	126.92	4.56		0.0312	0.0081	0.1493	0.1062	0.6808	0.0244	
8 Dhaka	4.96	19.45	26.35	2.77	214.68	2.00		0.0183	0.0720	0.0975	0.0103	0.7945	0.0074	
9 Dinajpur	3.20	14.28	28.17	13.37	155.71	2.27		0.0183	0.0720	0.0975	0.0103	0.7945	0.0074	
10 Faridpur	1.76	5.66	12.45	3.21	71.29	1.77		0.0148	0.0658	0.1298	0.0616	0.7176	0.0105	
11 Feni	2.63	6.69	19.61	5.00	146.48	1.73		0.0183	0.0588	0.1295	0.0334	0.7415	0.0184	
12 Hatiya	3.22	16.34	13.79	0.71	22.36	0.56		0.0144	0.0367	0.1077	0.0274	0.8042	0.0095	
13 Ishurdi	14.97	3.59	43.85	13.05	345.81	13.86		0.0564	0.2869	0.2420	0.0125	0.3924	0.0098	
14 Jessore	3.49	7.72	10.22	9.04	48.51	2.55		0.0344	0.0082	0.1008	0.0300	0.7947	0.0318	
15 Khepupara	2.67	13.93	12.58	1.33	43.99	0.32		0.0428	0.0948	0.1253	0.1108	0.5950	0.0313	
16 Khulna	2.28	11.52	9.72	8.47	46.55	1.22		0.0357	0.1862	0.1682	0.0177	0.5879	0.0043	
17 Kutubdia	0.45	9.45	28.00	4.81	77.87	4.03		0.0286	0.1444	0.1219	0.1062	0.5837	0.0153	
18 Madaripur	11.36	10.48	11.16	6.80	117.26	4.82		0.0036	0.0758	0.2247	0.0386	0.6249	0.0324	
19 M.Court	10.49	14.62	23.20	2.09	101.18	7.13		0.0661	0.0921	0.1462	0.0132	0.6375	0.0449	
20 Mongla	5.35	8.50	21.33	12.20	60.34	6.73		0.0702	0.0648	0.0689	0.0420	0.7244	0.0298	
21 Mymensingh	4.70	21.86	50.67	6.19	330.43	3.28		0.0467	0.0743	0.1864	0.1066	0.5272	0.0588	
22 Patuakhali	7.63	19.10	8.74	0.85	16.52	1.55		0.0113	0.0524	0.1215	0.0148	0.7922	0.0079	
23 Rajshahi	4.65	15.66	28.30	11.30	74.94	0.58		0.1403	0.3512	0.1606	0.0156	0.3037	0.0285	
24 Rangamati	78.39	31.17	13.88	4.32	23.95	4.92		0.0343	0.1156	0.2090	0.0835	0.5534	0.0043	
25 Rangpur	5.37	22.90	36.04	5.22	112.46	1.37		0.5005	0.1990	0.0886	0.0276	0.1529	0.0314	
26 Sandwip	3.44	16.34	32.88	8.59	107.05	5.30		0.0293	0.1249	0.1966	0.0285	0.6133	0.0075	
27 Satkhira	15.47	22.90	11.42	7.61	15.47	7.24		0.0198	0.0941	0.1894	0.0495	0.6166	0.0305	
28 Shitakunda	13.78	30.14	9.96	2.64	21.79	3.96		0.1931	0.2858	0.1426	0.0950	0.1932	0.0903	
29 Srimongol	4.65	17.03	18.45	18.77	198.43	1.93		0.1676	0.3663	0.1210	0.0321	0.2649	0.0481	
30 Sylhet	14.10	7.72	109.09	6.95	815.90	13.15		0.0179	0.0657	0.0712	0.0724	0.7654	0.0074	
31 Tangail	14.10	7.72	109.09	6.95	815.90	13.15		0.0146	0.0080	0.1128	0.0072	0.8438	0.0136	
32 Teknaf	7.58	21.17	28.94	1.72	110.62	2.67		0.0146	0.0080	0.1128	0.0072	0.8438	0.0136	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99		1.9171	3.4895	4.6958	1.4566	19.6965	0.7444	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B88. Determination of Best Fit Distribution
Chi-square values of Wind Speed Data for different probability distributions

							Scaling					Appendix B	
							Rank	3	4	5	2	6	1
December							Comparison	2.36	2.75	4.21	1.53	18.43	1.00
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	5.87	11.52	6.26	26.24	103.06	4.55	0.0373	0.0731	0.0397	0.1666	0.6544	0.0289	
2 Bhola	8.75	26.69	28.45	13.47	509.47	6.55	0.0148	0.0450	0.0479	0.0227	0.8586	0.0110	
3 Bogra	17.24	21.17	169.51	29.01	137.92	90.51	0.0371	0.0455	0.3643	0.0623	0.2964	0.1945	
4 Chandpur	7.43	10.83	18.03	27.89	142.27	3.38	0.0354	0.0516	0.0859	0.1329	0.6780	0.0161	
5 Chittagong	15.10	11.52	27.24	4.82	49.04	13.38	0.1247	0.0951	0.2249	0.0398	0.4049	0.1105	
6 Comilla	15.73	28.07	24.46	5.40	56.62	1.64	0.1192	0.2128	0.1854	0.0409	0.4292	0.0124	
7 Cox's Bazar	4.20	5.31	30.05	11.90	86.94	7.59	0.0288	0.0364	0.2058	0.0815	0.5955	0.0520	
8 Dhaka	20.43	38.07	67.80	20.47	182.94	10.14	0.0601	0.1120	0.1995	0.0602	0.5383	0.0298	
9 Dinajpur	7.41	16.69	33.07	4.14	220.70	4.55	0.0601	0.1120	0.1995	0.0602	0.5383	0.0298	
10 Faridpur	8.91	1.86	27.70	0.98	212.59	5.51	0.0259	0.0582	0.1154	0.0144	0.7702	0.0159	
11 Feni	9.31	19.45	12.07	0.81	53.48	2.99	0.0346	0.0072	0.1075	0.0038	0.8254	0.0214	
12 Hatiya	2.10	6.00	13.86	1.34	48.58	1.30	0.0949	0.1982	0.1230	0.0082	0.5451	0.0305	
13 Ishurdi	1.39	10.48	44.02	6.96	318.82	1.34	0.0288	0.0820	0.1894	0.0184	0.6638	0.0177	
14 Jessore	3.00	11.52	17.28	10.87	71.41	4.15	0.0036	0.0274	0.1149	0.0182	0.8324	0.0035	
15 Khepupara	9.57	16.69	38.73	4.37	156.63	15.35	0.0254	0.0974	0.1462	0.0920	0.6040	0.0351	
16 Khulna	4.10	14.28	10.08	9.13	44.53	1.64	0.0397	0.0692	0.1605	0.0181	0.6490	0.0636	
17 Kutubdia	2.52	14.97	42.04	6.19	146.35	3.69	0.0490	0.1705	0.1203	0.1090	0.5316	0.0196	
18 Madaripur	11.25	1.17	14.57	29.33	156.60	9.72	0.0117	0.0694	0.1949	0.0287	0.6783	0.0171	
19 M.Court	9.85	14.97	36.25	4.88	278.30	9.13	0.0279	0.0424	0.1026	0.0138	0.7876	0.0258	
20 Mongla	1.69	6.50	16.76	16.15	78.49	0.79	0.0505	0.0053	0.0655	0.1317	0.7033	0.0437	
21 Mymensingh	14.57	9.45	37.25	9.17	277.17	10.83	0.0140	0.0540	0.1392	0.1341	0.6520	0.0066	
22 Patuakhali	9.94	26.00	10.68	1.19	35.08	3.74	0.0406	0.0264	0.1039	0.0256	0.7733	0.0302	
23 Rajshahi	1.57	6.69	40.45	11.73	212.35	2.40	0.1148	0.3001	0.1233	0.0137	0.4050	0.0431	
24 Rangamati	2031.38	34.28	22.55	2.20	40.51	7.85	0.0057	0.0243	0.1470	0.0426	0.7716	0.0087	
25 Rangpur	4.70	8.41	52.57	14.62	342.78	5.38	0.9498	0.0160	0.0105	0.0010	0.0189	0.0037	
26 Sandwip	9.96	25.31	23.49	3.85	58.99	3.43	0.0110	0.0196	0.1227	0.0341	0.8000	0.0126	
27 Satkhira	13.50	19.10	9.01	5.63	13.80	6.43	0.0796	0.2024	0.1879	0.0308	0.4718	0.0274	
28 Shitakunda	10.20	19.79	9.87	1.49	39.05	1.26	0.2000	0.2831	0.1335	0.0835	0.2046	0.0952	
29 Srimongol	8.11	13.59	6.27	19.87	161.95	5.30	0.1250	0.2424	0.1208	0.0182	0.4782	0.0154	
30 Sylhet	1.22	12.55	62.77	2.74	286.12	1.82	0.0377	0.0632	0.0292	0.0924	0.7529	0.0246	
31 Tangail	1.22	12.55	62.77	2.74	286.12	1.82	0.0033	0.0342	0.1709	0.0075	0.7791	0.0050	
32 Teknaf	3.95	16.00	36.05	2.07	156.41	6.54	0.0033	0.0342	0.1709	0.0075	0.7791	0.0050	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	2.4942	2.9105	4.4530	1.6147	19.4710	1.0566	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B89. Determination of Best Fit Distribution
Chi-square values of Wind Speed Data for different probability distributions
Yearly Average

							Scaling					Appendix B	
							Rank	3	4	5	2	6	1
							Comparison	1.15	1.73	6.49	1.03	24.31	1.00
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	3.34	9.79	152.35	3.94	1885.14	0.84	0.0016	0.0048	0.0741	0.0019	0.9172	0.0004	
2 Bhola	10.73	19.79	106.99	5.02	911.43	3.64	0.0101	0.0187	0.1012	0.0047	0.8618	0.0034	
3 Bogra	4.01	16.00	299.30	4.78	584.83	26.11	0.0043	0.0171	0.3201	0.0051	0.6255	0.0279	
4 Chandpur	3.04	3.24	36.80	1.82	315.04	3.84	0.0084	0.0089	0.1011	0.0050	0.8660	0.0105	
5 Chittagong	14.47	14.97	53.60	38.58	53.75	26.24	0.0718	0.0742	0.2659	0.1914	0.2666	0.1301	
6 Comilla	7.73	30.14	100.17	0.23	329.77	2.65	0.0164	0.0640	0.2128	0.0005	0.7006	0.0056	
7 Cox's Bazar	6.40	8.76	65.52	12.56	210.29	7.08	0.0206	0.0282	0.2109	0.0404	0.6770	0.0228	
8 Dhaka	8.06	4.62	75.80	13.18	525.21	10.67	0.0126	0.0072	0.1189	0.0207	0.8238	0.0167	
9 Dinajpur	20.51	24.97	36.08	5.72	74.99	3.09	0.0126	0.0072	0.1189	0.0207	0.8238	0.0167	
10 Faridpur	0.60	7.72	35.92	4.67	104.76	1.78	0.1240	0.1510	0.2182	0.0346	0.4535	0.0187	
11 Feni	2.42	6.69	41.84	4.92	187.98	5.21	0.0038	0.0497	0.2311	0.0301	0.6739	0.0115	
12 Hatiya	1.02	11.52	57.74	3.18	135.21	1.16	0.0097	0.0269	0.1680	0.0197	0.7548	0.0209	
13 Ishurdi	11.54	16.00	71.80	4.92	247.49	5.16	0.0049	0.0549	0.2752	0.0152	0.6444	0.0055	
14 Jessore	1.88	4.62	36.27	4.51	90.11	4.34	0.0323	0.0448	0.2012	0.0138	0.6934	0.0145	
15 Khepupara	2.31	6.69	54.23	3.57	177.03	4.51	0.0132	0.0326	0.2559	0.0318	0.6358	0.0306	
16 Khulna	12.34	13.59	26.41	3.68	44.93	8.09	0.0093	0.0269	0.2184	0.0144	0.7129	0.0182	
17 Kutubdia	3.02	16.00	79.34	5.52	234.87	4.73	0.1132	0.1246	0.2422	0.0338	0.4120	0.0742	
18 Madaripur	11.27	9.45	25.21	9.46	165.47	4.95	0.0088	0.0466	0.2310	0.0161	0.6838	0.0138	
19 M.Court	8.34	14.62	126.81	4.39	794.02	10.87	0.0087	0.0152	0.1322	0.0046	0.8279	0.0113	
20 Mongla	11.20	4.50	54.83	15.70	235.62	28.69	0.0499	0.0418	0.1116	0.0419	0.7328	0.0219	
21 Mymensingh	3.34	6.34	67.50	3.14	337.89	3.73	0.0319	0.0128	0.1564	0.0448	0.6722	0.0818	
22 Patuakhali	11.97	8.41	28.00	6.43	101.51	5.74	0.0079	0.0150	0.1600	0.0074	0.8008	0.0088	
23 Rajshahi	5.13	12.21	26.78	2.33	45.70	4.21	0.0738	0.0519	0.1728	0.0396	0.6264	0.0354	
24 Rangamati	14.72	32.55	50.25	7.67	202.88	6.28	0.0532	0.1267	0.2779	0.0242	0.4743	0.0437	
25 Rangpur	3.43	4.62	77.74	5.41	466.28	0.75	0.0468	0.1036	0.1598	0.0244	0.6454	0.0200	
26 Sandwip	4.11	5.66	50.59	11.29	147.65	16.84	0.0061	0.0083	0.1393	0.0097	0.8353	0.0013	
27 Satkhira	14.35	24.28	19.10	6.47	14.62	6.94	0.0174	0.0239	0.2142	0.0478	0.6253	0.0713	
28 Shitakunda	7.26	8.76	27.26	12.85	106.01	4.26	0.1674	0.2831	0.2227	0.0754	0.1705	0.0809	
29 Srimongol	16.17	18.07	90.44	9.22	692.36	27.29	0.0436	0.0526	0.1638	0.0772	0.6371	0.0256	
30 Sylhet	13.75	4.28	106.96	6.07	782.20	9.13	0.0189	0.0212	0.1060	0.0108	0.8112	0.0320	
31 Tangail	13.75	4.28	106.96	6.07	782.20	9.13	0.0149	0.0046	0.1160	0.0066	0.8480	0.0099	
32 Teknaf	2.37	19.10	58.58	1.63	235.46	1.85	0.0149	0.0046	0.1160	0.0066	0.8480	0.0099	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	1.0335	1.5540	5.8137	0.9208	21.7819	0.8960	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B90. Determination of Best Fit Distribution
Chi-square values of Wind Speed Data for different probability distributions
Yearly Maximum Monthly

							Scaling					Appendix B	
							Rank	3	4	5	2	6	1
							Comparison	2.10	3.00	11.13	1.39	18.59	1.00
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	2.81	3.24	75.86	10.79	298.80	4.19	0.0071	0.0082	0.1917	0.0273	0.7551	0.0106	
2 Bhola	39.25	36.34	62.19	3.07	62.31	6.07	0.1876	0.1737	0.2972	0.0147	0.2978	0.0290	
3 Bogra	7.86	13.59	412.34	6.10	859.22	5.00	0.0060	0.0104	0.3162	0.0047	0.6589	0.0038	
4 Chandpur	4.69	5.31	42.85	8.58	208.14	1.40	0.0173	0.0196	0.1581	0.0317	0.7681	0.0052	
5 Chittagong	22.04	8.76	56.56	57.76	33.62	20.30	0.1107	0.0440	0.2842	0.2902	0.1689	0.1020	
6 Comilla	1.18	8.76	42.86	4.87	55.28	1.52	0.0103	0.0765	0.3745	0.0425	0.4829	0.0132	
7 Cox's Bazar	11.78	2.55	74.33	11.88	163.64	15.21	0.0422	0.0091	0.2660	0.0425	0.5857	0.0544	
8 Dhaka	1.33	9.10	44.43	2.19	86.66	2.62	0.0091	0.0622	0.3036	0.0150	0.5922	0.0179	
9 Dinajpur	78.66	36.34	41.08	3.45	31.81	5.75	0.0091	0.0622	0.3036	0.0150	0.5922	0.0179	
10 Faridpur	5.41	6.69	31.32	1.54	50.86	2.67	0.3991	0.1844	0.2084	0.0175	0.1614	0.0292	
11 Feni	1.09	7.38	51.94	5.06	114.46	0.95	0.0550	0.0679	0.3180	0.0156	0.5164	0.0272	
12 Hatiya	4.83	19.79	60.75	1.35	36.85	1.04	0.0060	0.0408	0.2872	0.0280	0.6328	0.0052	
13 Ishurdi	12.30	11.86	49.38	5.74	60.32	9.24	0.0387	0.1588	0.4875	0.0109	0.2957	0.0084	
14 Jessore	4.97	8.76	53.14	9.48	47.18	1.01	0.0827	0.0797	0.3318	0.0386	0.4053	0.0620	
15 Khepupara	3.92	10.83	44.84	2.08	48.88	0.72	0.0399	0.0703	0.4267	0.0761	0.3788	0.0081	
16 Khulna	13.18	12.21	32.49	1.39	25.80	8.63	0.0352	0.0973	0.4030	0.0187	0.4393	0.0065	
17 Kutubdia	1.75	4.62	67.21	7.05	132.59	2.82	0.1407	0.1303	0.3468	0.0148	0.2753	0.0921	
18 Madaripur	2.89	11.52	22.21	6.55	39.72	1.56	0.0081	0.0214	0.3111	0.0326	0.6137	0.0131	
19 M.Court	1.23	12.21	85.71	6.94	223.16	0.69	0.0037	0.0370	0.2598	0.0210	0.6764	0.0021	
20 Mongla	6.10	12.50	77.24	9.03	177.55	6.51	0.0342	0.1364	0.2630	0.0775	0.4704	0.0185	
21 Mymensingh	1.31	7.03	63.51	2.79	134.85	2.25	0.0211	0.0433	0.2673	0.0313	0.6145	0.0225	
22 Patuakhali	3.90	8.76	28.51	2.28	33.91	3.48	0.0062	0.0332	0.2999	0.0132	0.6368	0.0106	
23 Rajshahi	14.26	26.69	39.62	1.04	14.56	2.61	0.0483	0.1083	0.3527	0.0282	0.4194	0.0431	
24 Rangamati	10.21	13.93	40.75	5.78	66.39	5.98	0.1444	0.2702	0.4011	0.0105	0.1474	0.0265	
25 Rangpur	7.73	10.14	76.11	6.98	157.62	6.48	0.0714	0.0974	0.2849	0.0404	0.4641	0.0418	
26 Sandwip	2.92	4.97	35.80	3.55	52.28	3.25	0.0292	0.0382	0.2871	0.0263	0.5947	0.0245	
27 Satkhira	6.20	17.03	16.54	8.04	6.39	3.00	0.0284	0.0483	0.3484	0.0345	0.5088	0.0316	
28 Shitakunda	4.61	3.24	37.83	2.60	79.89	5.48	0.1084	0.2978	0.2892	0.1405	0.1117	0.0525	
29 Srimongol	8.85	12.21	42.44	0.56	142.16	3.66	0.0345	0.0243	0.2830	0.0194	0.5978	0.0410	
30 Sylhet	6.55	16.69	101.49	2.62	350.28	5.35	0.0422	0.0582	0.2022	0.0026	0.6774	0.0174	
31 Tangail	6.55	16.69	101.49	2.62	350.28	5.35	0.0136	0.0346	0.2101	0.0054	0.7253	0.0111	
32 Teknaf	6.36	16.00	56.29	2.62	139.97	4.01	0.0136	0.0346	0.2101	0.0054	0.7253	0.0111	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	1.8038	2.5787	9.5745	1.1926	15.9905	0.8600	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B91. Determination of Best Fit Distribution
Chi-square values of Wind Speed Data for different probability distributions
Yearly Minimum Monthly

							Scaling					Appendix B	
							Rank	2	4	5	3	6	1
							Comparison	1.70	2.46	3.92	1.89	24.35	1.00
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	25.79	26.00	48.93	52.92	924.05	18.35	0.0235	0.0237	0.0446	0.0483	0.8431	0.0167	
2 Bhola	28.57	35.66	103.13	75.20	1207.92	40.67	0.0192	0.0239	0.0692	0.0504	0.8101	0.0273	
3 Bogra	1.81	6.69	88.54	4.01	161.36	5.69	0.0067	0.0250	0.3303	0.0149	0.6019	0.0212	
4 Chandpur	20.90	24.62	9.70	35.77	123.39	15.58	0.0909	0.1071	0.0422	0.1556	0.5366	0.0678	
5 Chittagong	4.10	13.24	14.33	3.19	39.67	4.48	0.0519	0.1676	0.1814	0.0404	0.5020	0.0567	
6 Comilla	5.26	4.62	20.51	28.55	411.03	2.34	0.0111	0.0098	0.0434	0.0604	0.8703	0.0050	
7 Cox's Bazar	1.21	7.38	34.02	10.82	150.70	2.53	0.0059	0.0357	0.1646	0.0524	0.7292	0.0122	
8 Dhaka	11.13	13.59	51.16	20.53	739.13	8.17	0.0132	0.0161	0.0606	0.0243	0.8761	0.0097	
9 Dinajpur	18.49	20.48	45.40	9.87	239.18	6.99	0.0132	0.0161	0.0606	0.0243	0.8761	0.0097	
10 Faridpur	13.95	2.55	20.06	20.27	185.45	8.18	0.0543	0.0602	0.1334	0.0290	0.7026	0.0205	
11 Feni	11.74	1.52	10.34	25.89	214.50	5.93	0.0557	0.0102	0.0801	0.0809	0.7404	0.0327	
12 Hatiya	14.63	19.10	22.58	5.79	84.09	6.64	0.0435	0.0056	0.0383	0.0959	0.7947	0.0220	
13 Ishurdi	3.23	2.21	33.29	7.68	387.78	6.04	0.0957	0.1250	0.1477	0.0379	0.5502	0.0434	
14 Jessore	18.91	8.07	22.68	25.46	164.74	10.63	0.0073	0.0050	0.0756	0.0174	0.8809	0.0137	
15 Khepupara	5.47	17.72	36.10	1.28	115.29	8.54	0.0755	0.0322	0.0906	0.1016	0.6577	0.0424	
16 Khulna	5.54	15.66	15.54	2.55	67.42	1.31	0.0297	0.0961	0.1958	0.0069	0.6252	0.0463	
17 Kutubdia	4.61	21.17	42.87	6.97	135.79	7.72	0.0513	0.1449	0.1439	0.0236	0.6241	0.0122	
18 Madaripur	9.89	13.24	9.39	19.18	138.71	4.79	0.0210	0.0966	0.1956	0.0318	0.6197	0.0352	
19 M.Court	9.45	4.62	20.45	31.09	178.51	9.43	0.0373	0.0182	0.0806	0.1226	0.7040	0.0372	
20 Mongla	12.82	8.50	40.11	11.29	192.49	13.67	0.0507	0.0678	0.0481	0.0983	0.7106	0.0245	
21 Mymensingh	17.12	9.10	32.07	17.83	286.23	11.30	0.0460	0.0305	0.1438	0.0405	0.6902	0.0490	
22 Patuakhali	4.68	14.28	8.46	2.56	42.02	1.04	0.0458	0.0244	0.0858	0.0477	0.7660	0.0302	
23 Rajshahi	6.01	11.86	20.79	20.89	94.19	4.47	0.0641	0.1954	0.1158	0.0351	0.5752	0.0143	
24 Rangamati	16.03	44.62	45.83	2.30	302.93	7.56	0.0380	0.0750	0.1314	0.1320	0.5953	0.0283	
25 Rangpur	10.11	6.69	65.56	19.01	592.31	19.51	0.0382	0.1064	0.1093	0.0055	0.7225	0.0180	
26 Sandwip	16.40	3.59	27.79	15.89	154.91	13.69	0.0142	0.0094	0.0919	0.0267	0.8305	0.0274	
27 Satkhira	20.23	37.72	14.12	8.24	18.96	8.20	0.0706	0.0154	0.1197	0.0684	0.6669	0.0589	
28 Shitakunda	31.54	32.90	12.76	7.24	30.15	3.91	0.1883	0.3510	0.1314	0.0766	0.1764	0.0763	
29 Srimongol	3.12	11.17	24.46	19.72	379.66	3.20	0.2662	0.2776	0.1076	0.0611	0.2544	0.0330	
30 Sythet	1.42	7.72	56.61	12.93	407.08	1.68	0.0071	0.0253	0.0554	0.0447	0.8603	0.0072	
31 Tangail	1.42	7.72	56.61	12.93	407.08	1.68	0.0029	0.0158	0.1161	0.0265	0.8351	0.0034	
32 Teknaf	14.31	0.83	28.68	21.44	311.31	11.30	0.0029	0.0158	0.1161	0.0265	0.8351	0.0034	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	1.5418	2.2289	3.5512	1.7086	22.0635	0.9060	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B92. Determination of Best Fit Distribution
Chi-square values of Wind Speed Data for different probability distributions
Average Pre-Monsoon(Mar-May)

							Scaling						Appendix B
							Rank	3	4	5	2	6	1
							Comparison	1.60	2.24	7.85	1.14	18.53	1.00
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	22.54	11.86	132.19	23.36	428.75	14.22	0.0356	0.0187	0.2089	0.0369	0.6774	0.0225	
2 Bhola	33.80	23.24	67.72	2.08	212.00	4.44	0.0985	0.0677	0.1973	0.0061	0.6176	0.0129	
3 Bogra	6.00	3.24	264.07	3.95	568.86	14.53	0.0070	0.0038	0.3068	0.0046	0.6610	0.0169	
4 Chandpur	3.55	13.59	31.24	1.89	135.97	1.19	0.0189	0.0725	0.1667	0.0101	0.7255	0.0063	
5 Chittagong	4.84	5.31	35.09	18.63	21.41	8.12	0.0519	0.0569	0.3757	0.1994	0.2292	0.0869	
6 Comilla	5.57	15.66	45.12	3.78	65.84	1.18	0.0406	0.1141	0.3290	0.0276	0.4801	0.0086	
7 Cox's Bazar	4.15	3.24	46.92	3.75	110.86	11.44	0.0230	0.0180	0.2601	0.0208	0.6147	0.0634	
8 Dhaka	6.62	6.69	54.50	7.87	204.36	7.74	0.0230	0.0232	0.1894	0.0273	0.7101	0.0269	
9 Dinajpur	100.57	34.28	38.63	3.62	41.94	6.99	0.0230	0.0232	0.1894	0.0273	0.7101	0.0269	
10 Faridpur	2.93	3.24	38.19	4.97	95.58	3.44	0.4449	0.1516	0.1709	0.0160	0.1856	0.0309	
11 Feni	4.80	6.34	42.61	7.46	129.19	8.96	0.0198	0.0218	0.2574	0.0335	0.6442	0.0232	
12 Hatiya	5.81	8.76	47.64	7.98	97.20	2.50	0.0241	0.0318	0.2137	0.0374	0.6480	0.0450	
13 Ishurdi	7.03	12.90	48.89	3.89	100.33	2.60	0.0342	0.0516	0.2804	0.0470	0.5722	0.0147	
14 Jessore	3.81	9.10	44.38	2.71	49.26	3.18	0.0401	0.0734	0.2784	0.0222	0.5712	0.0148	
15 Khepupara	1.65	9.10	48.07	10.14	88.72	1.15	0.0339	0.0810	0.3947	0.0241	0.4381	0.0283	
16 Khulna	16.30	16.34	27.17	1.59	27.21	8.47	0.0104	0.0573	0.3027	0.0639	0.5586	0.0072	
17 Kutubdia	2.24	8.76	50.13	1.28	132.72	2.71	0.1679	0.1683	0.2798	0.0164	0.2803	0.0873	
18 Madaripur	9.87	11.52	25.11	4.85	103.19	3.59	0.0113	0.0443	0.2534	0.0064	0.6709	0.0137	
19 M.Court	4.86	9.10	54.51	3.26	193.00	2.03	0.0182	0.0341	0.2043	0.0122	0.7235	0.0076	
20 Mongla	19.26	26.50	112.79	20.71	273.74	67.70	0.0624	0.0728	0.1588	0.0306	0.6526	0.0227	
21 Mymensingh	2.34	14.97	85.20	0.56	253.12	3.40	0.0370	0.0509	0.2166	0.0398	0.5257	0.1300	
22 Patuakhali	5.87	16.34	35.96	1.51	64.17	2.04	0.0065	0.0416	0.2369	0.0016	0.7039	0.0095	
23 Rajshahi	4.02	16.34	27.19	3.98	26.55	1.08	0.0466	0.1298	0.2856	0.0120	0.5097	0.0162	
24 Rangamati	2.55	16.69	41.29	2.69	119.71	0.75	0.0508	0.2065	0.3434	0.0502	0.3354	0.0136	
25 Rangpur	4.01	3.24	60.30	6.42	258.07	3.11	0.0139	0.0909	0.2248	0.0146	0.6517	0.0041	
26 Sandwip	0.79	6.34	28.48	10.55	38.23	3.11	0.0120	0.0097	0.1799	0.0191	0.7700	0.0093	
27 Satkhira	8.80	24.97	18.95	6.40	9.39	4.28	0.0091	0.0725	0.3255	0.1206	0.4369	0.0355	
28 Shitakunda	7.62	6.69	35.81	7.98	82.67	4.27	0.1209	0.3430	0.2604	0.0879	0.1290	0.0588	
29 Srimongol	6.30	12.90	54.81	11.83	278.07	38.12	0.0525	0.0461	0.2469	0.0550	0.5700	0.0294	
30 Sylhet	10.76	1.17	108.43	8.59	609.08	7.88	0.0157	0.0321	0.1363	0.0294	0.6917	0.0948	
31 Tangail	10.76	1.17	108.43	8.59	609.08	7.88	0.0144	0.0016	0.1454	0.0115	0.8166	0.0106	
32 Teknaf	4.44	29.45	63.22	70.53	122.29	22.94	0.0144	0.0016	0.1454	0.0115	0.8166	0.0106	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	1.5824	2.2125	7.7651	1.1230	18.3279	0.9892	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B93. Determination of Best Fit Distribution
Chi-square values of Wind Speed Data for different probability distributions
Average Monsoon(Jun-Oct)

							Scaling					Appendix B	
							Rank	2	4	5	3	6	1
							Comparison	1.05	1.89	7.17	1.22	22.28	1.00
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	4.05	7.72	111.27	2.18	954.34	2.66	0.0037	0.0071	0.1028	0.0020	0.8818	0.0025	
2 Bhola	5.02	16.69	137.19	0.39	1545.53	4.26	0.0029	0.0098	0.0803	0.0002	0.9043	0.0025	
3 Bogra	3.26	7.03	209.79	1.59	531.62	2.25	0.0043	0.0093	0.2777	0.0021	0.7036	0.0030	
4 Chandpur	3.87	4.28	41.29	12.12	320.62	1.93	0.0101	0.0111	0.1075	0.0316	0.8347	0.0050	
5 Chittagong	19.96	10.83	55.66	55.21	45.70	25.75	0.0936	0.0508	0.2612	0.2591	0.2144	0.1208	
6 Comilla	15.71	22.90	81.62	2.38	206.89	5.95	0.0468	0.0683	0.2433	0.0071	0.6167	0.0177	
7 Cox's Bazar	9.71	3.24	72.28	10.60	244.82	8.60	0.0278	0.0093	0.2070	0.0304	0.7010	0.0246	
8 Dhaka	5.51	5.66	62.94	11.85	294.24	28.89	0.0135	0.0138	0.1539	0.0290	0.7193	0.0706	
9 Dinajpur	7.25	13.93	36.05	9.61	125.52	7.14	0.0135	0.0138	0.1539	0.0290	0.7193	0.0706	
10 Faridpur	3.59	8.07	27.88	4.84	53.19	5.07	0.0363	0.0698	0.1807	0.0481	0.6292	0.0358	
11 Feni	1.18	15.66	50.09	0.74	144.34	0.76	0.0350	0.0786	0.2716	0.0472	0.5182	0.0494	
12 Hatiya	1.38	9.45	61.29	0.69	128.30	0.86	0.0055	0.0736	0.2354	0.0035	0.6784	0.0036	
13 Ishurdi	3.81	16.34	49.64	4.66	116.24	0.92	0.0069	0.0468	0.3035	0.0034	0.6352	0.0043	
14 Jessore	1.71	5.31	50.51	7.17	134.23	1.62	0.0199	0.0853	0.2591	0.0243	0.6066	0.0048	
15 Khepupara	2.42	7.38	56.40	8.05	127.75	5.44	0.0085	0.0265	0.2519	0.0357	0.6693	0.0081	
16 Khulna	12.52	14.28	28.21	3.12	52.42	6.93	0.0116	0.0356	0.2719	0.0388	0.6158	0.0262	
17 Kutubdia	7.35	21.86	93.36	6.61	209.88	9.14	0.1066	0.1215	0.2401	0.0266	0.4462	0.0590	
18 Madaripur	1.47	11.17	25.12	5.75	86.65	0.45	0.0211	0.0628	0.2681	0.0190	0.6027	0.0263	
19 M.Court	1.26	12.90	106.13	1.72	529.62	0.91	0.0019	0.0198	0.1626	0.0026	0.8116	0.0014	
20 Mongla	0.98	4.00	38.23	4.13	137.08	2.89	0.0112	0.0855	0.1923	0.0440	0.6634	0.0034	
21 Mymensingh	9.64	14.97	80.95	5.52	211.06	8.37	0.0052	0.0214	0.2041	0.0221	0.7318	0.0154	
22 Patuakhali	8.95	3.24	25.17	6.50	80.81	4.02	0.0292	0.0453	0.2449	0.0167	0.6386	0.0253	
23 Rajshahi	7.44	23.24	37.39	3.83	33.96	1.75	0.0695	0.0252	0.1956	0.0505	0.6280	0.0312	
24 Rangamati	33.99	44.62	64.11	13.30	163.55	19.28	0.0692	0.2160	0.3475	0.0356	0.3156	0.0162	
25 Rangpur	2.89	4.62	60.88	6.27	300.29	2.80	0.1003	0.1317	0.1892	0.0392	0.4827	0.0569	
26 Sandwip	0.22	11.52	52.40	11.90	114.74	23.08	0.0077	0.0122	0.1611	0.0166	0.7949	0.0074	
27 Satkhira	12.83	19.79	17.68	12.80	14.72	5.90	0.0010	0.0539	0.2450	0.0557	0.5365	0.1079	
28 Shitakunda	3.65	8.07	30.86	1.56	88.55	2.83	0.1533	0.2364	0.2112	0.1528	0.1758	0.0705	
29 Srirongol	7.58	13.24	63.70	14.58	458.14	16.21	0.0269	0.0595	0.2277	0.0115	0.6534	0.0209	
30 Sylhet	3.83	8.76	88.45	4.64	548.50	1.65	0.0132	0.0231	0.1111	0.0254	0.7989	0.0283	
31 Tangail	3.83	8.76	88.45	4.64	548.50	1.65	0.0058	0.0134	0.1349	0.0071	0.8364	0.0025	
32 Teknaf	5.22	12.90	38.84	2.13	187.95	1.59	0.0058	0.0134	0.1349	0.0071	0.8364	0.0025	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.9681	1.7505	6.6319	1.1239	20.6010	0.9246	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B94. Determination of Best Fit Distribution
Chi-square values of Wind Speed Data for different probability distributions
Average Post-Monsoon(Nov-Feb)

Station	Scaling						Appendix B											
	Rank						Comparison											
	4	3	5	1	6	2	1.40	1.35	3.39	1.00	18.02	1.16						
Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	9.63	5.21	33.04	6.59	682.98	5.45	0.0130	0.0070	0.0445	0.0089	0.9193	0.0073	0.0046	0.0169	0.0545	0.0025	0.9196	0.0019
2 Bhola	7.17	26.64	85.82	3.94	1447.90	2.95	0.0095	0.0146	0.1743	0.0117	0.1786	0.6113	0.0299	0.0027	0.0576	0.0318	0.8561	0.0220
3 Bogra	9.45	14.50	173.11	11.62	177.38	607.10	0.0170	0.0972	0.2618	0.0401	0.5199	0.0639	0.0300	0.0148	0.1715	0.0292	0.7285	0.0260
4 Chandpur	10.24	0.93	19.74	10.91	293.56	7.53	0.0118	0.0042	0.0657	0.0263	0.8869	0.0051	0.0118	0.0042	0.0657	0.0263	0.8869	0.0051
5 Chittagong	2.42	13.79	37.13	5.69	73.74	9.06	0.0767	0.1415	0.1562	0.0098	0.6047	0.0111	0.0767	0.1415	0.1562	0.0098	0.6047	0.0111
6 Comilla	5.44	22.00	38.76	1.30	201.59	1.76	0.0355	0.0073	0.1106	0.0658	0.7506	0.0302	0.0355	0.0073	0.1106	0.0658	0.7506	0.0302
7 Cox's Bazar	7.66	3.79	43.84	7.45	186.19	6.64	0.0423	0.0049	0.0832	0.0713	0.7695	0.0288	0.0423	0.0049	0.0832	0.0713	0.7695	0.0288
8 Dhaka	6.62	2.36	36.75	14.70	495.73	2.83	0.0784	0.1343	0.2091	0.0812	0.4746	0.0224	0.0784	0.1343	0.2091	0.0812	0.4746	0.0224
9 Dinajpur	9.99	18.43	20.35	1.27	78.78	1.45	0.0078	0.0120	0.0913	0.0073	0.8661	0.0155	0.0078	0.0120	0.0913	0.0073	0.8661	0.0155
10 Faridpur	9.76	2.00	30.44	18.10	206.57	8.31	0.0452	0.0134	0.0972	0.0497	0.7689	0.0255	0.0452	0.0134	0.0972	0.0497	0.7689	0.0255
11 Feni	11.01	1.29	21.67	18.58	200.44	7.49	0.0220	0.0768	0.1501	0.0293	0.7014	0.0203	0.0220	0.0768	0.1501	0.0293	0.7014	0.0203
12 Hatiya	7.01	12.00	18.69	7.25	42.42	2.01	0.0281	0.0500	0.1386	0.0895	0.6763	0.0176	0.0281	0.0500	0.1386	0.0895	0.6763	0.0176
13 Ishurdi	7.13	10.93	83.09	6.68	788.53	14.08	0.0073	0.0316	0.1749	0.0283	0.7356	0.0222	0.0073	0.0316	0.1749	0.0283	0.7356	0.0222
14 Jessore	10.37	3.07	22.31	11.41	176.43	5.85	0.0152	0.0122	0.0909	0.1712	0.6742	0.0364	0.0152	0.0122	0.0909	0.1712	0.6742	0.0364
15 Khepupara	2.93	10.21	19.97	3.90	93.30	2.70	0.0314	0.0111	0.0622	0.0470	0.8295	0.0189	0.0314	0.0111	0.0622	0.0470	0.8295	0.0189
16 Khulna	3.33	5.93	16.44	10.61	80.20	2.08	0.0236	0.0716	0.1687	0.0895	0.5372	0.1094	0.0236	0.0716	0.1687	0.0895	0.5372	0.1094
17 Kutubdia	1.87	8.07	44.66	7.22	187.80	5.67	0.0036	0.0077	0.0852	0.0128	0.8882	0.0025	0.0036	0.0077	0.0852	0.0128	0.8882	0.0025
18 Madaripur	8.65	3.07	17.15	12.95	228.74	5.20	0.0599	0.1722	0.1642	0.0453	0.5337	0.0247	0.0599	0.1722	0.1642	0.0453	0.5337	0.0247
19 M.Court	7.40	5.93	44.22	83.30	328.13	17.72	0.0477	0.0108	0.1334	0.0671	0.7001	0.0409	0.0477	0.0108	0.1334	0.0671	0.7001	0.0409
20 Mongla	4.24	12.84	30.27	16.06	96.39	19.62	0.6384	0.0809	0.0805	0.0033	0.1774	0.0195	0.6384	0.0809	0.0805	0.0033	0.1774	0.0195
21 Mymensingh	3.49	7.36	81.71	12.31	852.30	2.41	0.0019	0.0256	0.1246	0.0075	0.8367	0.0037	0.0019	0.0256	0.1246	0.0075	0.8367	0.0037
22 Patuakhali	5.17	14.86	14.17	3.91	46.05	2.13	0.0445	0.1307	0.2209	0.0550	0.5137	0.0353	0.0445	0.1307	0.2209	0.0550	0.5137	0.0353
23 Rajshahi	8.81	2.00	24.63	12.39	129.28	7.56	0.2117	0.2532	0.1841	0.0394	0.2143	0.0972	0.2117	0.2532	0.1841	0.0394	0.2143	0.0972
24 Rangamati	300.39	38.07	37.87	1.57	83.45	9.16	0.0873	0.1104	0.1272	0.0107	0.6228	0.0416	0.0873	0.1104	0.1272	0.0107	0.6228	0.0416
25 Rangpur	0.92	12.36	60.26	3.63	404.56	1.80	0.0241	0.0195	0.0790	0.0365	0.8178	0.0231	0.0241	0.0195	0.0790	0.0365	0.8178	0.0231
26 Sandwip	7.60	22.36	37.78	9.41	87.86	6.03	0.0100	0.0109	0.1742	0.0086	0.7911	0.0052	0.0100	0.0109	0.1742	0.0086	0.7911	0.0052
27 Satkhira	21.38	25.57	18.59	3.98	21.64	9.82	0.0100	0.0109	0.1742	0.0086	0.7911	0.0052	0.0100	0.0109	0.1742	0.0086	0.7911	0.0052
28 Shitakunda	16.85	21.29	24.53	2.06	120.13	8.02	0.0100	0.0109	0.1742	0.0086	0.7911	0.0052	0.0100	0.0109	0.1742	0.0086	0.7911	0.0052
29 Srimongol	13.36	10.83	43.77	20.22	453.19	12.77	0.0100	0.0109	0.1742	0.0086	0.7911	0.0052	0.0100	0.0109	0.1742	0.0086	0.7911	0.0052
30 Sylhet	6.07	6.64	105.91	5.22	480.88	3.13	0.0100	0.0109	0.1742	0.0086	0.7911	0.0052	0.0100	0.0109	0.1742	0.0086	0.7911	0.0052
31 Tangail	6.07	6.64	105.91	5.22	480.88	3.13	0.0100	0.0109	0.1742	0.0086	0.7911	0.0052	0.0100	0.0109	0.1742	0.0086	0.7911	0.0052
32 Teknaf	2.37	20.93	48.79	2.05	199.65	1.52	0.0100	0.0109	0.1742	0.0086	0.7911	0.0052	0.0100	0.0109	0.1742	0.0086	0.7911	0.0052
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	1.7004	1.6424	4.1194	1.2163	21.9157	1.4059	1.7004	1.6424	4.1194	1.2163	21.9157	1.4059

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B95. Determination of Best Fit Distribution

Chi-square values of Bright Sunshine Hour Data for different probability distributions

							Scaling						Appendix B
							Rank	1	3	5	2	6	4
January							Comparison	1.00	1.46	19.20	1.23	19.63	3.89
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	1.86	9.45	169.70	5.20	202.98	15.21	0.0046	0.0234	0.4196	0.0129	0.5019	0.0376	
2 Bhola	2.91	8.43	103.95	7.80	128.95	2.49	0.0114	0.0331	0.4084	0.0306	0.5066	0.0098	
3 Bogra	6.58	13.93	107.80	12.78	66.98	30.20	0.0276	0.0585	0.4524	0.0536	0.2811	0.1267	
4 Chandpur	5.65	17.03	133.49	10.05	115.60	38.54	0.0176	0.0532	0.4167	0.0314	0.3608	0.1203	
5 Chittagong	5.23	25.15	228.69	8.70	224.40	169.43	0.0079	0.0380	0.3457	0.0132	0.3392	0.2561	
6 Comilla	4.31	14.50	140.51	12.68	125.72	8.42	0.0141	0.0474	0.4590	0.0414	0.4107	0.0275	
7 Cox's Bazar	4.00	3.93	216.48	1.66	332.97	3.54	0.0071	0.0070	0.3848	0.0029	0.5919	0.0063	
8 Dhaka	11.47	9.45	122.54	16.78	104.61	19.26	0.0404	0.0333	0.4313	0.0591	0.3682	0.0678	
9 Dinajpur	12.44	4.00	86.10	6.03	94.82	11.20	0.0404	0.0333	0.4313	0.0591	0.3682	0.0678	
10 Faridpur	9.43	9.33	122.72	9.96	127.83	14.31	0.0580	0.0186	0.4012	0.0281	0.4419	0.0522	
11 Feni	10.58	14.75	143.77	6.72	139.35	322.47	0.0321	0.0318	0.4180	0.0339	0.4354	0.0487	
12 Hatiya	4.69	19.33	194.72	17.37	203.87	337.96	0.0166	0.0231	0.2255	0.0105	0.2185	0.5057	
13 Ishurdi	2.06	11.83	135.87	1.42	157.38	2.81	0.0060	0.0249	0.2503	0.0223	0.2621	0.4344	
14 Jessore	1.07	6.69	130.32	1.00	155.74	3.96	0.0066	0.0380	0.4364	0.0045	0.5054	0.0090	
15 Khepupara	1.07	6.69	130.32	1.00	155.74	3.96	0.0036	0.0224	0.4362	0.0033	0.5213	0.0132	
16 Khulna	9.09	5.20	143.93	18.68	187.52	12.40	0.0036	0.0224	0.4362	0.0033	0.5213	0.0132	
17 Kutubdia	3.49	9.20	209.85	3.88	312.75	4.88	0.0241	0.0138	0.3820	0.0496	0.4976	0.0329	
18 Madaripur	0.66	13.05	93.77	4.25	87.26	3.02	0.0064	0.0169	0.3857	0.0071	0.5749	0.0090	
19 M.Court	9.53	6.42	114.16	3.41	118.07	16.65	0.0355	0.0239	0.4256	0.0127	0.4402	0.0621	
20 Mongla	6.34	4.50	66.05	9.92	60.73	3.97	0.0033	0.0646	0.4642	0.0211	0.4319	0.0150	
21 Mymensingh	6.30	18.76	134.71	3.55	114.41	9.86	0.0419	0.0297	0.4359	0.0655	0.4008	0.0262	
22 Patuakhali	1.45	7.67	149.01	3.03	227.68	2.23	0.0219	0.0652	0.4684	0.0124	0.3978	0.0343	
23 Rajshahi	5.42	16.00	207.98	1.39	291.53	10.55	0.0037	0.0196	0.3810	0.0077	0.5822	0.0057	
24 Rangamati	6.19	21.18	131.01	19.06	87.49	217.98	0.0102	0.0300	0.3903	0.0026	0.5471	0.0198	
25 Rangpur	1.54	4.62	77.59	1.80	60.64	4.35	0.0128	0.0439	0.2713	0.0395	0.1812	0.4514	
26 Sandwip	13.40	3.91	124.75	8.49	150.82	14.98	0.0102	0.0307	0.5154	0.0120	0.4028	0.0289	
27 Satkhira	6.70	2.00	133.13	3.05	170.96	10.77	0.0424	0.0124	0.3943	0.0268	0.4767	0.0474	
28 Shitakunda	6.60	3.93	46.45	5.71	23.00	3.64	0.0205	0.0061	0.4076	0.0093	0.5234	0.0330	
29 Srimongol	6.60	3.93	46.45	5.71	23.00	3.64	0.0739	0.0440	0.5200	0.0640	0.2574	0.0407	
30 Sylhet	1.47	7.03	121.33	5.46	121.58	4.75	0.0739	0.0440	0.5200	0.0640	0.2574	0.0407	
31 Tangail	3.59	6.64	87.23	2.57	88.21	10.98	0.0056	0.0269	0.4638	0.0209	0.4647	0.0181	
32 Teknaf	6.09	12.55	330.23	2.33	489.85	10.92	0.0056	0.0269	0.4638	0.0209	0.4647	0.0181	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.6895	1.0068	13.2422	0.8462	13.5355	2.6798	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B96. Determination of Best Fit Distribution

Chi-square values of Bright Sunshine Hour Data for different probability distributions

							Scaling				Appendix B		
							Rank	2	3	5	1	6	4
February	Comparison						1.06	1.34	23.30	1.00	26.29	8.83	
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	2.60	7.38	220.24	3.66	320.52	8.47	0.0046	0.0131	0.3913	0.0065	0.5694	0.0150	
2 Bhola	1.21	4.86	115.31	1.85	128.23	2.67	0.0047	0.0191	0.4538	0.0073	0.5046	0.0105	
3 Bogra	19.14	19.45	209.93	23.92	198.29	255.50	0.0264	0.0268	0.2891	0.0329	0.2730	0.3518	
4 Chandpur	8.06	16.69	211.71	8.39	267.63	15.32	0.0153	0.0316	0.4011	0.0159	0.5071	0.0290	
5 Chittagong	13.47	10.92	196.20	6.22	239.65	94.99	0.0240	0.0195	0.3494	0.0111	0.4268	0.1692	
6 Comilla	3.43	28.43	250.49	6.97	268.18	14.28	0.0060	0.0497	0.4381	0.0122	0.4690	0.0250	
7 Cox's Bazar	1.50	8.07	151.26	1.60	137.05	9.54	0.0049	0.0261	0.4895	0.0052	0.4435	0.0309	
8 Dhaka	23.06	7.38	188.60	11.67	235.94	34.62	0.0460	0.0147	0.3762	0.0233	0.4707	0.0691	
9 Dinajpur	5.12	6.00	105.93	5.39	111.99	6.24	0.0460	0.0147	0.3762	0.0233	0.4707	0.0691	
10 Faridpur	4.26	3.92	126.48	5.16	146.39	17.29	0.0213	0.0249	0.4402	0.0224	0.4653	0.0259	
11 Feni	42.67	36.42	107.43	4.02	30.09	2.34E+11	0.0140	0.0129	0.4167	0.0170	0.4823	0.0570	
12 Hatiya	16.97	45.58	291.74	14.59	227.16	270.59	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
13 Ishurdi	4.58	5.17	160.84	3.61	204.59	8.13	0.0196	0.0526	0.3366	0.0168	0.2621	0.3122	
14 Jessore	4.13	19.79	237.09	27.56	298.99	10362.65	0.0118	0.0134	0.4157	0.0093	0.5288	0.0210	
15 Khepupara	4.13	19.79	237.09	27.56	298.99	10362.65	0.0004	0.0018	0.0217	0.0025	0.0273	0.9463	
16 Khulna	2.60	7.20	163.25	4.53	207.89	7.66	0.0004	0.0018	0.0217	0.0025	0.0273	0.9463	
17 Kutubdia	12.27	9.20	256.20	13.57	416.06	37.87	0.0066	0.0183	0.4153	0.0115	0.5288	0.0195	
18 Madaripur	2.05	3.05	103.14	4.25	134.36	4.46	0.0165	0.0123	0.3438	0.0182	0.5583	0.0508	
19 M.Court	4.81	8.92	162.23	3.34	182.35	5.04	0.0131	0.0243	0.4424	0.0091	0.4973	0.0137	
20 Mongla	3.67	2.00	54.09	1.33	60.07	1.90	0.0082	0.0121	0.4104	0.0169	0.5346	0.0178	
21 Mymensingh	2.88	7.03	144.27	2.41	183.95	2.64	0.0298	0.0163	0.4395	0.0108	0.4881	0.0154	
22 Patuakhali	15.32	13.08	155.46	7.54	198.05	8.19	0.0084	0.0205	0.4204	0.0070	0.5360	0.0077	
23 Rajshahi	9.23	6.69	286.30	10.98	423.16	8.27	0.0385	0.0329	0.3910	0.0190	0.4981	0.0206	
24 Rangamati	8.55	2.55	105.60	5.35	83.82	6.22	0.0124	0.0090	0.3845	0.0147	0.5683	0.0111	
25 Rangpur	4.81	4.28	131.29	9.82	143.38	16.88	0.0403	0.0120	0.4979	0.0252	0.3952	0.0293	
26 Sandwip	0.55	8.00	130.83	4.34	150.29	6.95	0.0155	0.0138	0.4229	0.0316	0.4618	0.0544	
27 Satkhira	16.63	8.40	252.04	17.72	436.57	22.52	0.0018	0.0266	0.4347	0.0144	0.4994	0.0231	
28 Shitakunda	4.63	11.86	82.41	4.91	36.61	13.13	0.0221	0.0111	0.3343	0.0235	0.5791	0.0299	
29 Srimongol	4.63	11.86	82.41	4.91	36.61	13.13	0.0302	0.0772	0.5367	0.0320	0.2384	0.0855	
30 Sylhet	4.91	1.17	138.90	7.24	176.15	4.84	0.0302	0.0772	0.5367	0.0320	0.2384	0.0855	
31 Tangail	5.97	3.45	119.86	5.63	140.22	3.84	0.0147	0.0035	0.4169	0.0217	0.5286	0.0145	
32 Teknaf	2.39	21.17	196.89	5.00	164.41	143.08	0.0147	0.0035	0.4169	0.0217	0.5286	0.0145	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.5484	0.6935	12.0615	0.5177	13.6073	4.5717	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B97. Determination of Best Fit Distribution

Chi-square values of Bright Sunshine Hour Data for different probability distributions

Scaling

Appendix B

March	Station	Rank					EV-I	Comparison					
		Normal	Uniform	Exponential	Log-Normal	Poisson		1	3	5	2	6	4
		10.26	31.17	286.27	6.19	319.65	49.64	0.0146	0.0443	0.4071	0.0088	0.4546	0.0706
	1 Barisal	6.72	17.36	132.81	4.97	98.56	37.53	0.0225	0.0583	0.4458	0.0167	0.3308	0.1260
	2 Bhola	20.10	46.00	326.28	92.89	291.12	1.85E+08	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
	3 Bogra	0.39	15.66	169.15	2.77	195.04	5.62	0.0010	0.0403	0.4353	0.0071	0.5019	0.0145
	4 Chandpur	8.74	5.92	164.70	4.63	193.76	15.96	0.0222	0.0150	0.4183	0.0118	0.4921	0.0405
	5 Chittagong	3.20	16.64	305.14	2.18	499.61	7.09	0.0038	0.0200	0.3659	0.0026	0.5992	0.0085
	6 Comilla	2.52	17.38	241.75	2.51	271.30	16.96	0.0046	0.0315	0.4376	0.0045	0.4911	0.0307
	7 Cox's Bazar	0.63	11.86	218.58	5.56	303.38	67.46	0.0010	0.0195	0.3598	0.0091	0.4994	0.1110
	8 Dhaka	6.52	5.50	219.99	1.67	427.07	2.47	0.0010	0.0195	0.3598	0.0091	0.4994	0.1110
	9 Dinajpur	3.56	15.17	290.18	2.72	532.57	19.18	0.0098	0.0083	0.3317	0.0025	0.6439	0.0037
	10 Faridpur	5.44	18.08	225.69	3.66	304.75	16.72	0.0041	0.0176	0.3361	0.0032	0.6168	0.0222
	11 Feni	4.33	3.92	164.62	8.72	226.32	3.79	0.0095	0.0315	0.3930	0.0064	0.5306	0.0291
	12 Hatiya	9.63	31.42	350.95	8.35	502.84	30.40	0.0105	0.0095	0.3999	0.0212	0.5497	0.0092
	13 Ishurdi	2.68	12.55	210.43	1.72	273.43	5.21	0.0103	0.0337	0.3759	0.0089	0.5386	0.0326
	14 Jessore	2.68	12.55	210.43	1.72	273.43	5.21	0.0053	0.0248	0.4158	0.0034	0.5403	0.0103
	15 Khepupara	5.96	9.20	223.97	4.26	347.03	147.33	0.0053	0.0248	0.4158	0.0034	0.5403	0.0103
	16 Khulna	3.27	3.20	161.45	3.58	205.99	4.11	0.0081	0.0125	0.3036	0.0058	0.4704	0.1997
	17 Kutubdia	2.97	10.19	235.53	3.51	293.87	0.64	0.0086	0.0084	0.4231	0.0094	0.5398	0.0108
	18 Madaripur	1.60	5.58	166.95	1.23	243.03	6.73	0.0038	0.0131	0.3927	0.0029	0.5717	0.0158
	19 M.Court	3.62	0.75	65.60	4.41	117.04	3.61	0.0054	0.0186	0.4308	0.0064	0.5375	0.0012
	20 Mongla	3.79	13.24	205.87	3.91	277.43	17.39	0.0186	0.0038	0.3363	0.0226	0.6001	0.0185
	21 Mymensingh	9.35	12.67	341.56	3.52	716.92	11.58	0.0073	0.0254	0.3947	0.0075	0.5318	0.0333
	22 Patuakhali	1.22	7.38	252.66	0.88	422.61	4.23	0.0085	0.0116	0.3118	0.0032	0.6544	0.0106
	23 Rajshahi	2.60	4.82	136.82	5.94	189.70	1.88	0.0018	0.0107	0.3667	0.0013	0.6134	0.0061
	24 Rangamati	8.81	14.28	218.47	1.73	288.76	8.09	0.0076	0.0141	0.4003	0.0174	0.5551	0.0055
	25 Rangpur	6.36	5.73	199.35	5.68	277.17	4.71	0.0163	0.0264	0.4045	0.0032	0.5346	0.0150
	26 Sandwip	2.95	22.00	224.02	1.53	235.03	6.25	0.0127	0.0115	0.3995	0.0114	0.5555	0.0094
	27 Satkhira	3.80	14.62	109.29	20.90	62.26	813.48	0.0060	0.0447	0.4555	0.0031	0.4779	0.0127
	28 Shitakunda	3.80	14.62	109.29	20.90	62.26	813.48	0.0037	0.0143	0.1067	0.0204	0.0608	0.7942
	29 Srimongol	3.85	8.76	160.61	1.98	188.39	22.20	0.0037	0.0143	0.1067	0.0204	0.0608	0.7942
	30 Sylhet	0.95	7.09	166.70	1.71	268.11	2.16	0.0100	0.0227	0.4163	0.0051	0.4883	0.0576
	31 Tangail	3.97	7.38	202.25	4.11	259.67	3.80	0.0100	0.0227	0.4163	0.0051	0.4883	0.0576
	32 Teknaf							0.2577	0.6733	11.5634	0.2640	15.5692	3.6723
	Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99						

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B98. Determination of Best Fit Distribution

Chi-square values of Bright Sunshine Hour Data for different probability distributions

April	Station	Rank					Scaling						
		Comparison					1	3	5	2	6	4	
		Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	1.00	2.67	48.50	1.22	69.41	9.56
1	Barisal	2.75	8.76	161.35	3.28	172.11	81.26	0.0064	0.0204	0.3757	0.0076	0.4007	0.1892
2	Bhola	1.36	15.93	157.71	2.34	167.94	1.42	0.0039	0.0459	0.4549	0.0068	0.4844	0.0041
3	Bogra	8.97	4.62	235.06	8.55	419.81	16.51	0.0129	0.0067	0.3389	0.0123	0.6053	0.0238
4	Chandpur	2.51	15.66	193.82	0.90	227.97	0.26	0.0057	0.0355	0.4394	0.0020	0.5168	0.0006
5	Chittagong	8.97	7.85	200.45	13.03	281.19	21.02	0.0168	0.0147	0.3764	0.0245	0.5281	0.0395
6	Comilla	18.43	16.64	343.60	8.03	648.46	7.63	0.0177	0.0160	0.3295	0.0077	0.6219	0.0073
7	Cox's Bazar	3.69	3.59	157.38	2.68	196.54	7.04	0.0100	0.0097	0.4243	0.0072	0.5299	0.0190
8	Dhaka	10.72	4.97	237.80	5.23	446.27	11.24	0.0150	0.0069	0.3320	0.0073	0.6231	0.0157
9	Dinajpur	1.38	11.00	108.03	8.58	94.89	11.27	0.0150	0.0069	0.3320	0.0073	0.6231	0.0157
10	Faridpur	1.79	15.58	212.20	9.13	268.00	31.94	0.0059	0.0468	0.4594	0.0365	0.4036	0.0479
11	Feni	3.86	6.00	199.44	3.40	367.69	12.44	0.0033	0.0289	0.3939	0.0170	0.4975	0.0593
12	Hatiya	10.26	17.25	200.38	51.14	221.09	3.90E+05	0.0065	0.0101	0.3364	0.0057	0.6202	0.0210
13	Ishurdi	1.44	6.83	350.08	4.45	891.39	6.41	0.0000	0.0000	0.0005	0.0001	0.0006	0.9987
14	Jessore	4.79	18.41	310.64	1.02	538.40	1.60	0.0011	0.0054	0.2777	0.0035	0.7071	0.0051
15	Khepupara	4.79	18.41	310.64	1.02	538.40	1.60	0.0055	0.0210	0.3551	0.0012	0.6154	0.0018
16	Khulna	2.21	4.00	266.67	1.29	587.65	5.07	0.0055	0.0210	0.3551	0.0012	0.6154	0.0018
17	Kutubdia	8.99	10.00	147.45	14.94	134.59	49.11	0.0026	0.0046	0.3076	0.0015	0.6779	0.0059
18	Madaripur	2.83	8.76	153.18	4.73	163.86	1.16	0.0246	0.0274	0.4039	0.0409	0.3687	0.1345
19	M.Court	2.48	6.00	166.53	2.44	237.35	4.59	0.0059	0.0143	0.3971	0.0058	0.5659	0.0109
20	Mongla	2.49	0.75	137.17	6.13	352.17	2.28	0.0085	0.0262	0.4579	0.0141	0.4898	0.0035
21	Mymensingh	4.73	21.17	309.75	11.97	512.23	320.38	0.0050	0.0015	0.2738	0.0122	0.7030	0.0045
22	Patuakhali	2.68	18.08	157.34	2.66	157.65	7.54	0.0040	0.0179	0.2625	0.0101	0.4340	0.2715
23	Rajshahi	6.67	16.00	343.54	5.19	615.77	24.67	0.0078	0.0523	0.4548	0.0077	0.4557	0.0218
24	Rangamati	3.23	4.82	164.04	4.35	253.60	13.64	0.0066	0.0158	0.3395	0.0051	0.6086	0.0244
25	Rangpur	0.57	6.69	142.12	3.38	172.31	3.13	0.0073	0.0109	0.3697	0.0098	0.5716	0.0307
26	Sandwip	1.40	12.09	220.79	3.36	344.73	1.80	0.0017	0.0204	0.4330	0.0103	0.5250	0.0095
27	Satkhira	0.88	7.60	313.70	2.73	695.89	1.72	0.0024	0.0207	0.3780	0.0058	0.5901	0.0031
28	Shitakunda	0.41	10.14	116.19	0.55	102.77	2.66	0.0009	0.0074	0.3068	0.0027	0.6806	0.0017
29	Srimongol	0.41	10.14	116.19	0.55	102.77	2.66	0.0018	0.0436	0.4993	0.0024	0.4416	0.0114
30	Sylhet	4.78	6.69	121.77	2.50	133.43	50.65	0.0018	0.0436	0.4993	0.0024	0.4416	0.0114
31	Tangail	1.75	4.82	199.10	5.80	412.68	3.24	0.0150	0.0209	0.3807	0.0078	0.4172	0.1584
32	Teknaf	5.68	9.45	261.20	1.04	255.12	5.78	0.0150	0.0209	0.3807	0.0078	0.4172	0.1584
Critical Chi Square Value (95% Confidence Level)		5.99	5.99	7.81	5.99	7.81	5.99	0.2418	0.6445	11.7258	0.2943	16.7816	2.3120

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B99. Determination of Best Fit Distribution

Chi-square values of Bright Sunshine Hour Data for different probability distributions

							Scaling						Appendix B	
							Rank	1	3	5	2	6	4	
May	Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Comparison	1.00	2.01	22.08	1.30	22.93	4.36
							Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I		
1	Barisal	4.32	7.38	90.64	10.08	58.76	22.07	0.0224	0.0382	0.4690	0.0522	0.3041	0.1142	
2	Bhola	4.37	7.00	83.57	6.72	82.00	2.32	0.0235	0.0376	0.4493	0.0361	0.4409	0.0125	
3	Bogra	6.95	14.28	121.42	5.80	94.71	39.42	0.0246	0.0505	0.4297	0.0205	0.3352	0.1395	
4	Chandpur	7.28	6.69	87.41	5.37	79.95	7.29	0.0375	0.0345	0.4506	0.0277	0.4121	0.0376	
5	Chittagong	3.50	11.31	117.21	9.24	98.50	19.13	0.0135	0.0437	0.4527	0.0357	0.3805	0.0739	
6	Comilla	4.89	16.64	97.86	8.25	54.56	7.64	0.0257	0.0877	0.5155	0.0435	0.2874	0.0402	
7	Cox's Bazar	6.82	16.69	189.84	4.84	200.49	7.48	0.0160	0.0392	0.4455	0.0114	0.4705	0.0175	
8	Dhaka	1.96	4.97	123.71	7.70	134.39	4.85	0.0071	0.0179	0.4457	0.0277	0.4842	0.0175	
9	Dinajpur	5.12	6.00	107.42	2.54	122.56	6.11	0.0071	0.0179	0.4457	0.0277	0.4842	0.0175	
10	Faridpur	9.12	8.92	145.14	3.99	158.19	14.38	0.0205	0.0240	0.4301	0.0102	0.4907	0.0245	
11	Feni	1.95	10.58	122.64	3.45	135.72	6.57	0.0269	0.0262	0.4272	0.0117	0.4656	0.0423	
12	Hatiya	9.65	17.67	151.38	4.86	165.36	10.61	0.0069	0.0377	0.4366	0.0123	0.4831	0.0234	
13	Ishurdi	1.87	5.58	110.31	4.35	121.34	2.00	0.0268	0.0491	0.4210	0.0135	0.4599	0.0295	
14	Jessore	13.24	11.86	249.65	11.79	400.25	16.74	0.0076	0.0227	0.4494	0.0177	0.4944	0.0081	
15	Khepupara	13.24	11.86	249.65	11.79	400.25	16.74	0.0188	0.0169	0.3549	0.0168	0.5689	0.0238	
16	Khulna	11.50	12.80	180.73	3.08	208.87	15.72	0.0188	0.0169	0.3549	0.0168	0.5689	0.0238	
17	Kutubdia	3.99	9.20	123.65	5.14	133.48	2.77	0.0266	0.0296	0.4177	0.0071	0.4827	0.0363	
18	Madanipur	1.30	3.52	70.00	0.69	79.25	4.27	0.0143	0.0331	0.4444	0.0185	0.4798	0.0100	
19	M.Court	1.14	7.67	93.42	2.82	84.83	2.10	0.0059	0.0399	0.4866	0.0147	0.4419	0.0110	
20	Mongla	3.21	0.75	97.35	6.35	246.73	3.12	0.0082	0.0222	0.4402	0.0043	0.4983	0.0268	
21	Mymensingh	3.25	18.07	104.19	18.05	58.74	541.91	0.0090	0.0021	0.2723	0.0178	0.6901	0.0087	
22	Patuakhali	1.93	5.58	70.65	5.39	58.96	1.12	0.0044	0.0243	0.1400	0.0243	0.0789	0.7282	
23	Rajshahi	0.77	12.55	128.69	1.78	110.83	6.62	0.0134	0.0389	0.4919	0.0375	0.4105	0.0078	
24	Rangamati	2.90	8.45	117.46	1.83	148.52	8.54	0.0030	0.0480	0.4926	0.0068	0.4242	0.0253	
25	Rangpur	8.01	19.10	95.32	14.13	49.37	195.21	0.0101	0.0294	0.4083	0.0063	0.5162	0.0297	
26	Sandwip	5.76	13.91	112.91	2.38	120.57	2.41	0.0210	0.0501	0.2501	0.0371	0.1295	0.5122	
27	Satkhira	9.33	4.80	212.10	3.49	394.58	7.80	0.0223	0.0539	0.4377	0.0092	0.4674	0.0094	
28	Shitakunda	14.06	11.52	111.50	8.07	131.96	6.39	0.0148	0.0076	0.3355	0.0055	0.6242	0.0123	
29	Srimongol	14.06	11.52	111.50	8.07	131.96	6.39	0.0496	0.0406	0.3933	0.0285	0.4655	0.0225	
30	Sylhet	5.81	26.00	112.55	21.45	52.84	70.83	0.0496	0.0406	0.3933	0.0285	0.4655	0.0225	
31	Tangail	9.17	5.73	104.13	6.36	125.24	14.03	0.0201	0.0898	0.3888	0.0741	0.1825	0.2447	
32	Teknaf	1.63	6.00	77.72	1.98	47.83	2.66	0.0201	0.0898	0.3888	0.0741	0.1825	0.2447	
Critical Chi Square Value (95% Confidence Level)		5.99	5.99	7.81	5.99	7.81	5.99	0.5961	1.2006	13.1593	0.7757	13.6705	2.5979	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B100. Determination of Best Fit Distribution

Chi-square values of Bright Sunshine Hour Data for different probability distributions
June

Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Barisal	4.15	4.28	53.29	3.47	70.73	4.73
2 Bhola	10.18	5.21	62.15	7.42	124.06	5.70
3 Bogra	2.61	4.62	88.32	10.07	119.29	1.59
4 Chandpur	2.32	8.41	77.52	11.05	111.13	6.37
5 Chittagong	4.11	24.38	93.95	4.42	77.88	4.98
6 Comilla	4.46	23.07	130.34	4.93	132.68	49.90
7 Cox's Bazar	3.33	4.62	36.19	12.41	13.89	16.15
8 Dhaka	6.95	12.21	68.49	14.13	51.97	8.60
9 Dinajpur	15.97	6.00	61.18	6.05	65.39	10.64
10 Faridpur	10.28	4.75	112.92	7.45	213.37	6.51
11 Feni	8.08	18.08	108.42	6.14	126.33	10.71
12 Hatiya	9.00	14.75	83.99	2.90	92.37	9.89
13 Ishurdi	10.41	8.08	119.75	10.81	191.21	4.45
14 Jessore	9.66	0.48	74.57	7.94	110.25	7.92
15 Khepupara	9.66	0.48	74.57	7.94	110.25	7.92
16 Khulna	1.91	5.20	69.33	2.43	88.58	7.83
17 Kutubdia	7.56	1.20	52.49	8.66	60.55	7.74
18 Madaripur	3.39	2.57	66.83	7.28	139.55	2.77
19 M.Court	8.33	23.08	88.70	2.98	92.60	6.51
20 Mongla	2.81	0.75	27.53	10.97	57.33	2.85
21 Mymensingh	2.55	12.90	72.59	2.91	84.89	0.83
22 Patuakhali	8.36	18.08	68.82	6.60	78.14	12.62
23 Rajshahi	15.75	17.38	146.65	7.80	190.61	10.61
24 Rangamati	5.82	9.36	74.94	1.81	92.81	6.63
25 Rangpur	3.94	17.72	79.27	0.36	43.26	0.82
26 Sandwip	9.58	17.55	85.02	5.42	76.39	8.46
27 Satkhira	11.82	9.60	64.49	18.49	47.03	15.22
28 Shitakunda	1.83	4.28	49.47	5.42	57.52	1.89
29 Srimongol	1.83	4.28	49.47	5.42	57.52	1.89
30 Sylhet	5.06	17.03	63.46	3.90	69.35	1.96
31 Tangail	6.34	10.73	80.15	3.31	92.95	7.48
32 Teknaf	0.93	9.45	43.83	5.00	31.30	1.69
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99

Rank	Scaling						Appendix B
	1	4	5	2	6	3	
	1.00	1.55	11.29	1.19	13.19	1.20	
Comparison	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1	0.0297	0.0305	0.3805	0.0248	0.5050	0.0295	
2	0.0474	0.0243	0.2894	0.0345	0.5778	0.0266	
3	0.0115	0.0204	0.3899	0.0445	0.5267	0.0070	
4	0.0107	0.0388	0.3575	0.0510	0.5126	0.0294	
5	0.0196	0.1163	0.4480	0.0211	0.3714	0.0237	
6	0.0129	0.0668	0.3774	0.0143	0.3842	0.1445	
7	0.0385	0.0534	0.4179	0.1434	0.1604	0.1865	
8	0.0428	0.0752	0.4219	0.0870	0.3201	0.0530	
9	0.0428	0.0752	0.4219	0.0870	0.3201	0.0530	
10	0.0967	0.0363	0.3703	0.0366	0.3958	0.0644	
11	0.0289	0.0134	0.3178	0.0210	0.6006	0.0183	
12	0.0291	0.0651	0.3903	0.0221	0.4548	0.0386	
13	0.0423	0.0693	0.3945	0.0136	0.4339	0.0464	
14	0.0302	0.0234	0.3474	0.0314	0.5547	0.0129	
15	0.0458	0.0023	0.3537	0.0377	0.5230	0.0376	
16	0.0458	0.0023	0.3537	0.0377	0.5230	0.0376	
17	0.0109	0.0297	0.3955	0.0139	0.5054	0.0446	
18	0.0547	0.0087	0.3798	0.0627	0.4381	0.0560	
19	0.0375	0.1039	0.3992	0.0134	0.4167	0.0293	
20	0.0153	0.0116	0.3005	0.0327	0.6275	0.0124	
21	0.0275	0.0073	0.2693	0.1073	0.5607	0.0279	
22	0.0144	0.0730	0.4109	0.0165	0.4806	0.0047	
23	0.0434	0.0939	0.3573	0.0342	0.4057	0.0655	
24	0.0405	0.0447	0.3772	0.0200	0.4903	0.0273	
25	0.0304	0.0489	0.3916	0.0094	0.4850	0.0346	
26	0.0271	0.1219	0.5453	0.0025	0.2976	0.0057	
27	0.0473	0.0867	0.4200	0.0268	0.3774	0.0418	
28	0.0709	0.0576	0.3870	0.1110	0.2822	0.0913	
29	0.0152	0.0355	0.4109	0.0450	0.4778	0.0157	
30	0.0152	0.0355	0.4109	0.0450	0.4778	0.0157	
31	0.0315	0.1060	0.3947	0.0243	0.4314	0.0122	
32	0.0315	0.1060	0.3947	0.0243	0.4314	0.0122	
Critical Chi Square Value (95% Confidence Level)	1.0879	1.6837	12.2770	1.2964	14.3493	1.3057	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B101. Determination of Best Fit Distribution

Chi-square values of Bright Sunshine Hour Data for different probability distributions

July	Station	Scaling					EV-I	Appendix B						
		Normal	Uniform	Exponential	Log-Normal	Poisson		Rank	1	4	5	2	6	3
								Comparison	1.00	2.86	15.83	1.23	19.05	2.64
1	Barisal	2.59	6.69	58.65	3.65	73.29	3.63	Normal	0.0175	0.0450	0.3950	0.0245	0.4935	0.0244
2	Bhola	1.85	3.79	29.52	3.68	33.64	3.98	Uniform	0.0242	0.0495	0.3861	0.0482	0.4399	0.0521
3	Bogra	4.63	6.34	63.24	2.78	69.97	7.52	Exponential	0.0300	0.0411	0.4093	0.0180	0.4529	0.0487
4	Chandpur	3.86	21.17	96.31	3.16	128.46	4.24	Log-Normal	0.0150	0.0823	0.3745	0.0123	0.4994	0.0165
5	Chittagong	10.34	20.54	215.39	26.48	483.47	15.20	Poisson	0.0134	0.0266	0.2792	0.0343	0.6267	0.0197
6	Comilla	3.72	18.79	96.94	6.43	90.63	4.36	EV-I	0.0168	0.0851	0.4389	0.0291	0.4104	0.0197
7	Cox's Bazar	4.89	16.69	62.29	9.04	53.76	4.38		0.0324	0.1105	0.4124	0.0599	0.3559	0.0290
8	Dhaka	3.05	13.59	95.19	10.47	109.20	32.53		0.0116	0.0515	0.3605	0.0397	0.4136	0.1232
9	Dinajpur	15.08	2.50	38.28	12.81	44.31	9.02		0.0116	0.0515	0.3605	0.0397	0.4136	0.1232
10	Faridpur	1.39	6.42	83.97	3.92	135.79	3.11		0.1236	0.0205	0.3138	0.1050	0.3632	0.0739
11	Feni	9.57	33.50	111.85	6.40	80.24	15.53		0.0059	0.0274	0.3579	0.0167	0.5788	0.0132
12	Hatiya	4.87	19.33	99.46	8.12	143.24	1.13		0.0372	0.1303	0.4351	0.0249	0.3121	0.0604
13	Ishurdi	7.26	6.83	76.89	5.75	119.10	4.94		0.0176	0.0700	0.3602	0.0294	0.5187	0.0041
14	Jessore	2.88	28.07	88.10	8.05	67.87	3.52		0.0329	0.0310	0.3483	0.0260	0.5395	0.0224
15	Khepupara	2.88	28.07	88.10	8.05	67.87	3.52		0.0145	0.1414	0.4439	0.0405	0.3420	0.0177
16	Khulna	11.37	26.00	83.69	2.65	55.97	429925.25		0.0145	0.1414	0.4439	0.0405	0.3420	0.0177
17	Kutubdia	7.69	27.20	102.70	4.37	118.55	2.91		0.0000	0.0001	0.0002	0.0000	0.0001	0.9996
18	Madaripur	5.05	4.95	75.89	3.25	191.90	2.11		0.0292	0.1033	0.3899	0.0166	0.4500	0.0111
19	M.Court	6.19	5.17	51.47	7.83	72.22	4.46		0.0420	0.0351	0.3493	0.0531	0.4902	0.0303
20	Mongla	5.77	4.50	32.23	3.72	37.81	2.45		0.0178	0.0175	0.2680	0.0115	0.6777	0.0075
21	Mymensingh	0.81	7.03	55.20	3.73	60.03	11.01		0.0667	0.0520	0.3727	0.0430	0.4372	0.0283
22	Patuakhali	3.84	9.75	47.65	0.95	76.57	1.19		0.0059	0.0510	0.4006	0.0271	0.4356	0.0799
23	Rajshahi	1.33	12.21	102.47	4.33	142.64	2.15		0.0274	0.0697	0.3405	0.0068	0.5471	0.0085
24	Rangamati	0.94	5.27	47.20	3.67	59.79	1.80		0.0050	0.0460	0.3865	0.0163	0.5380	0.0081
25	Rangpur	1.33	19.79	74.32	2.85	50.24	1.85		0.0079	0.0444	0.3977	0.0310	0.5038	0.0152
26	Sandwip	5.24	5.73	66.51	4.11	89.80	6.51		0.0088	0.1316	0.4942	0.0190	0.3341	0.0123
27	Satkhira	14.42	32.80	169.40	2.99	263.77	14.07		0.0295	0.0322	0.3739	0.0231	0.5048	0.0366
28	Shitakunda	3.84	15.66	64.32	3.00	74.36	1.70		0.0290	0.0659	0.3405	0.0060	0.5302	0.0283
29	Srimongol	3.84	15.66	64.32	3.00	74.36	1.70		0.0236	0.0961	0.3949	0.0184	0.4565	0.0104
30	Sylhet	1.24	15.66	68.61	3.37	66.67	2.63		0.0236	0.0961	0.3949	0.0184	0.4565	0.0104
31	Tangail	3.59	10.73	58.60	4.75	70.03	2.57		0.0078	0.0990	0.4338	0.0213	0.4215	0.0166
32	Teknaf	2.56	11.86	38.61	5.69	37.97	0.95		0.0078	0.0990	0.4338	0.0213	0.4215	0.0166
Critical Chi Square Value (95% Confidence Level)		5.99	5.99	7.81	5.99	7.81	5.99		0.7509	2.1440	11.8906	0.9216	14.3072	1.9856

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B102. Determination of Best Fit Distribution

Chi-square values of Bright Sunshine Hour Data for different probability distributions

							Scaling						Appendix B
							Rank	1	3	5	4	6	2
August							Comparison	1.00	1.33	12.46	1.85	12.84	1.15
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	3.13	7.38	78.01	11.42	92.27	3.45	0.0160	0.0377	0.3987	0.0584	0.4716	0.0176	
2 Bhola	7.35	5.57	63.13	22.24	79.70	11.47	0.0388	0.0294	0.3332	0.1174	0.4207	0.0605	
3 Bogra	6.39	7.72	89.41	7.01	98.72	10.70	0.0291	0.0351	0.4065	0.0319	0.4488	0.0487	
4 Chandpur	2.34	18.07	76.53	9.69	65.74	3.67	0.0133	0.1026	0.4347	0.0551	0.3734	0.0208	
5 Chittagong	3.30	5.54	57.44	6.89	49.85	13.83	0.0241	0.0405	0.4197	0.0504	0.3643	0.1010	
6 Comilla	9.50	14.86	103.85	2.41	106.51	8.15	0.0387	0.0606	0.4234	0.0098	0.4342	0.0332	
7 Cox's Bazar	11.57	6.00	79.41	7.30	78.91	12.60	0.0591	0.0306	0.4056	0.0373	0.4030	0.0643	
8 Dhaka	8.02	6.34	96.38	9.59	101.72	11.35	0.0344	0.0272	0.4129	0.0411	0.4358	0.0486	
9 Dinajpur	3.31	5.50	58.93	9.85	55.76	5.71	0.0344	0.0272	0.4129	0.0411	0.4358	0.0486	
10 Faridpur	6.69	1.83	57.53	7.09	64.30	5.41	0.0238	0.0396	0.4238	0.0708	0.4010	0.0411	
11 Feni	8.91	7.67	65.67	8.83	60.20	9.32	0.0468	0.0128	0.4027	0.0496	0.4501	0.0379	
12 Hatiya	6.58	11.83	69.38	7.81	79.25	2.81	0.0555	0.0477	0.4089	0.0550	0.3749	0.0580	
13 Ishurdi	4.35	3.92	81.87	3.20	108.65	5.92	0.0370	0.0666	0.3905	0.0440	0.4460	0.0158	
14 Jessore	3.88	6.69	80.58	9.51	96.79	4.45	0.0209	0.0188	0.3938	0.0154	0.5226	0.0285	
15 Khepupara	3.88	6.69	80.58	9.51	96.79	4.45	0.0192	0.0331	0.3991	0.0471	0.4794	0.0220	
16 Khulna	5.10	6.80	67.77	8.70	79.46	3.74	0.0192	0.0331	0.3991	0.0471	0.4794	0.0220	
17 Kutubdia	3.48	4.40	54.46	7.10	51.39	6.35	0.0297	0.0396	0.3950	0.0507	0.4632	0.0218	
18 Madaripur	2.10	2.10	38.10	11.35	45.73	1.96	0.0274	0.0346	0.4282	0.0559	0.4041	0.0499	
19 M.Court	7.11	2.67	55.35	11.22	58.16	4.79	0.0511	0.0191	0.3973	0.0806	0.4175	0.0344	
20 Mongla	7.05	4.50	31.68	4.24	47.89	2.21	0.0208	0.0207	0.3759	0.1120	0.4512	0.0194	
21 Mymensingh	1.57	7.72	74.75	10.93	80.81	3.99	0.0722	0.0461	0.3247	0.0435	0.4908	0.0227	
22 Patuakhali	7.42	2.67	50.29	31.21	64.26	10.92	0.0087	0.0430	0.4158	0.0608	0.4495	0.0222	
23 Rajshahi	3.19	3.93	86.27	4.52	102.50	6.79	0.0445	0.0160	0.3016	0.1871	0.3853	0.0655	
24 Rangamati	9.10	0.73	46.56	18.50	48.56	7.40	0.0154	0.0190	0.4163	0.0218	0.4947	0.0328	
25 Rangpur	9.65	4.62	90.69	15.68	108.05	15.46	0.0695	0.0056	0.3559	0.1414	0.3711	0.0566	
26 Sandwip	1.48	4.36	38.58	1.88	22.21	2.57	0.0395	0.0189	0.3714	0.0642	0.4425	0.0633	
27 Satkhira	9.49	5.20	80.69	12.75	106.68	4.23	0.0208	0.0614	0.5427	0.0264	0.3124	0.0362	
28 Shitakunda	3.36	11.17	41.29	7.72	27.86	2.64	0.0433	0.0237	0.3684	0.0582	0.4870	0.0193	
29 Srimongol	3.36	11.17	41.29	7.72	27.86	2.64	0.0357	0.1188	0.4391	0.0821	0.2963	0.0280	
30 Sylhet	1.08	8.76	53.01	5.28	38.31	2.01	0.0357	0.1188	0.4391	0.0821	0.2963	0.0280	
31 Tangail	5.92	5.73	75.01	12.03	78.24	3.52	0.0100	0.0808	0.4888	0.0487	0.3533	0.0185	
32 Teknaf	1.92	14.28	74.54	3.92	71.90	4.37	0.0100	0.0808	0.4888	0.0487	0.3533	0.0185	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	1.0446	1.3896	13.0146	1.9357	13.4094	1.2061	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B103. Determination of Best Fit Distribution

Chi-square values of Bright Sunshine Hour Data for different probability distributions

							Scaling					Appendix B	
September							Rank	1	3	5	2	6	4
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Comparison	1.00	1.40	15.48	1.34	18.71	3.61
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	4.29	9.45	82.96	4.14	57.35	2.85	0.0267	0.0587	0.5152	0.0257	0.3561	0.0177	
2 Bhola	2.90	6.64	50.45	6.94	55.02	1.34	0.0235	0.0539	0.4092	0.0563	0.4462	0.0109	
3 Bogra	1.43	7.72	79.20	6.92	76.76	8.85	0.0079	0.0427	0.4378	0.0383	0.4243	0.0489	
4 Chandpur	17.66	11.52	108.63	10.03	138.56	16.57	0.0583	0.0380	0.3586	0.0331	0.4574	0.0547	
5 Chittagong	4.56	8.23	157.98	4.31	273.07	31.05	0.0095	0.0172	0.3297	0.0090	0.5698	0.0648	
6 Comilla	7.50	8.79	116.42	17.77	143.45	11.03	0.0246	0.0288	0.3818	0.0583	0.4704	0.0362	
7 Cox's Bazar	3.77	14.97	112.14	3.31	107.88	3.48	0.0153	0.0609	0.4567	0.0135	0.4393	0.0142	
8 Dhaka	2.52	8.76	94.80	13.07	112.80	13.21	0.0103	0.0357	0.3867	0.0533	0.4601	0.0539	
9 Dinajpur	17.73	3.50	61.98	9.16	61.71	13.52	0.0103	0.0357	0.3867	0.0533	0.4601	0.0539	
10 Faridpur	5.47	2.67	86.30	8.51	114.66	4.85	0.1058	0.0209	0.3698	0.0547	0.3682	0.0806	
11 Feni	6.14	17.67	127.26	7.19	145.71	8.81	0.0246	0.0120	0.3879	0.0382	0.5154	0.0218	
12 Hatiya	10.06	14.75	138.06	5.34	228.75	47.93	0.0196	0.0565	0.4069	0.0230	0.4659	0.0282	
13 Ishurdi	5.11	2.25	74.27	2.72	108.50	5.88	0.0226	0.0332	0.3103	0.0120	0.5142	0.1077	
14 Jessore	12.83	6.34	109.73	18.44	124.33	5.72	0.0257	0.0113	0.3737	0.0137	0.5460	0.0296	
15 Khepupara	12.83	6.34	109.73	18.44	124.33	5.72	0.0462	0.0229	0.3956	0.0665	0.4482	0.0206	
16 Khulna	3.08	10.80	110.45	1.51	169.34	0.90	0.0462	0.0229	0.3956	0.0665	0.4482	0.0206	
17 Kutubdia	4.90	12.40	106.94	6.39	108.59	4.18	0.0104	0.0365	0.3730	0.0051	0.5719	0.0031	
18 Madaripur	2.44	3.05	63.27	2.81	107.98	2.91	0.0201	0.0509	0.4394	0.0263	0.4461	0.0172	
19 M.Court	1.96	9.33	101.89	6.24	135.29	3.18	0.0076	0.0362	0.3951	0.0242	0.5246	0.0123	
20 Mongla	5.70	2.00	50.80	11.93	106.51	7.63	0.0134	0.0167	0.3468	0.0154	0.5918	0.0160	
21 Mymensingh	1.89	10.48	63.70	8.50	48.94	21.59	0.0309	0.0108	0.2753	0.0646	0.5771	0.0413	
22 Patuakhali	5.87	6.00	65.21	7.45	61.68	2.41	0.0122	0.0676	0.4107	0.0548	0.3155	0.1392	
23 Rajshahi	4.93	5.31	105.19	6.47	132.52	24.25	0.0395	0.0404	0.4388	0.0501	0.4150	0.0162	
24 Rangamati	8.33	5.27	92.74	4.23	144.37	6.42	0.0177	0.0191	0.3775	0.0232	0.4755	0.0870	
25 Rangpur	7.02	6.00	101.55	12.13	124.44	9.73	0.0319	0.0202	0.3548	0.0162	0.5524	0.0246	
26 Sandwip	8.54	12.09	132.20	9.45	178.23	17.59	0.0269	0.0230	0.3893	0.0465	0.4770	0.0373	
27 Satkhira	4.76	4.80	91.70	4.46	103.09	4.54	0.0239	0.0338	0.3692	0.0264	0.4977	0.0491	
28 Shitakunda	3.79	11.52	99.49	1.06	126.01	2.46	0.0223	0.0225	0.4298	0.0209	0.4832	0.0213	
29 Srimongol	3.79	11.52	99.49	1.06	126.01	2.46	0.0155	0.0471	0.4072	0.0044	0.5157	0.0101	
30 Sylhet	1.35	12.90	50.94	8.17	16.49	401.45	0.0155	0.0471	0.4072	0.0044	0.5157	0.0101	
31 Tangail	10.14	3.00	59.12	7.61	81.63	9.30	0.0027	0.0263	0.1037	0.0166	0.0336	0.8171	
32 Teknaf	3.32	6.34	103.59	2.54	124.90	1.00	0.0027	0.0263	0.1037	0.0166	0.0336	0.8171	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.7704	1.0756	11.9233	1.0310	14.4163	2.7833	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B104. Determination of Best Fit Distribution

Chi-square values of Bright Sunshine Hour Data for different probability distributions

October	Station	Rank						Scaling						Appendix B
		Comparison						1	3	6	2	5	4	
		Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	1.00	1.93	24.72	1.26	24.03	8.99	
1	Barisal	4.85	1.52	100.72	5.35	111.12	5.88	0.0211	0.0066	0.4390	0.0233	0.4843	0.0256	
2	Bhola	2.15	8.79	64.91	4.02	41.92	5.65	0.0169	0.0689	0.5094	0.0315	0.3290	0.0443	
3	Bogra	2.48	8.76	104.33	4.17	81.37	5.04	0.0120	0.0425	0.5061	0.0202	0.3947	0.0245	
4	Chandpur	2.03	12.90	105.29	0.88	102.85	0.69	0.0090	0.0574	0.4687	0.0039	0.4579	0.0031	
5	Chittagong	2.94	3.23	119.14	1.40	154.66	7.45	0.0102	0.0112	0.4125	0.0049	0.5355	0.0258	
6	Comilla	3.72	4.14	102.98	7.04	113.02	2.32	0.0159	0.0178	0.4416	0.0302	0.4846	0.0099	
7	Cox's Bazar	1.42	10.14	142.99	5.15	144.52	30.02	0.0042	0.0303	0.4278	0.0154	0.4324	0.0898	
8	Dhaka	10.51	1.17	88.62	9.97	90.73	7.65	0.0504	0.0056	0.4247	0.0478	0.4348	0.0367	
9	Dinajpur	3.59	5.00	85.04	6.11	79.72	4.76	0.0504	0.0056	0.4247	0.0478	0.4348	0.0367	
10	Faridpur	6.59	1.42	80.31	2.59	74.41	7.73	0.0195	0.0271	0.4616	0.0332	0.4327	0.0258	
11	Feni	0.79	10.17	132.01	4.18	156.76	0.69	0.0381	0.0082	0.4641	0.0150	0.4300	0.0447	
12	Hatiya	9.78	18.92	199.09	11.08	296.77	30.63	0.0026	0.0334	0.4334	0.0137	0.5146	0.0023	
13	Ishurdi	7.77	6.42	114.19	5.52	116.68	60.72	0.0173	0.0334	0.3516	0.0196	0.5241	0.0541	
14	Jessore	2.30	5.31	91.65	2.52	84.77	5.21	0.0250	0.0206	0.3668	0.0177	0.3748	0.1951	
15	Khepupara	2.30	5.31	91.65	2.52	84.77	5.21	0.0120	0.0277	0.4779	0.0131	0.4421	0.0272	
16	Khulna	6.04	6.00	116.43	3.60	126.31	7.68	0.0120	0.0277	0.4779	0.0131	0.4421	0.0272	
17	Kutubdia	5.46	23.60	177.97	11.08	155.54	394.62	0.0227	0.0226	0.4376	0.0135	0.4747	0.0289	
18	Madaripur	2.38	10.19	80.40	4.81	69.11	1.62	0.0071	0.0307	0.2317	0.0144	0.2025	0.5137	
19	M.Court	9.38	6.42	101.85	4.19	109.36	8.88	0.0391	0.0267	0.4242	0.0175	0.4555	0.0370	
20	Mongla	5.66	0.75	68.46	5.01	129.58	3.58	0.0141	0.0605	0.4771	0.0285	0.4101	0.0096	
21	Mymensingh	1.18	6.69	106.52	5.66	111.92	0.84	0.0265	0.0035	0.3213	0.0235	0.6082	0.0168	
22	Patuakhali	4.07	7.25	73.46	7.06	64.19	35.17	0.0051	0.0287	0.4576	0.0243	0.4807	0.0036	
23	Rajshahi	1.84	17.03	147.64	12.09	121.61	5.42	0.0213	0.0379	0.3842	0.0369	0.3357	0.1839	
24	Rangamati	4.01	17.55	123.78	6.50	119.65	31.11	0.0060	0.0557	0.4830	0.0396	0.3979	0.0177	
25	Rangpur	2.40	13.59	102.79	0.58	55.86	2.20	0.0133	0.0580	0.4091	0.0215	0.3954	0.1028	
26	Sandwip	7.11	14.82	144.07	5.88	157.21	6.21	0.0135	0.0766	0.5793	0.0033	0.3148	0.0124	
27	Satkhira	8.70	17.20	64.60	4.84	13.53	329221.27	0.0212	0.0442	0.4297	0.0175	0.4689	0.0185	
28	Shitakunda	0.64	8.07	65.05	3.63	44.87	1.68	0.0000	0.0001	0.0002	0.0000	0.0000	0.9997	
29	Srimongol	0.64	8.07	65.05	3.63	44.87	1.68	0.0052	0.0651	0.5249	0.0293	0.3620	0.0136	
30	Sylhet	22.03	42.55	122.98	1.86	34.35	7.50E+08	0.0052	0.0651	0.5249	0.0293	0.3620	0.0136	
31	Tangail	1.44	6.18	85.98	1.01	84.00	2.99	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
32	Teknaf	1.64	13.93	182.20	1.69	200.00	0.48	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
Critical Chi Square Value (95% Confidence Level)		5.99	5.99	7.81	5.99	7.81	5.99	0.5168	0.9995	12.7726	0.6496	12.4170	4.6445	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B105. Determination of Best Fit Distribution

Chi-square values of Bright Sunshine Hour Data for different probability distributions

November

Station	Rank						Scaling					
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	1	3	6	2	5	4
1 Barisal	1.89	8.07	156.72	2.81	131.79	1.24	0.0062	0.0267	0.5181	0.0093	0.4357	0.0041
2 Bhola	4.39	9.50	99.13	2.89	100.74	1.04	0.0202	0.0436	0.4554	0.0133	0.4627	0.0048
3 Bogra	0.73	11.86	157.89	3.24	160.92	3.61	0.0022	0.0351	0.4668	0.0096	0.4757	0.0107
4 Chandpur	5.15	13.59	155.98	1.82	203.40	1.43	0.0135	0.0356	0.4090	0.0048	0.5333	0.0037
5 Chittagong	2.34	4.00	105.91	2.47	110.72	2.77	0.0103	0.0175	0.4641	0.0108	0.4852	0.0121
6 Comilla	2.23	17.71	228.88	3.42	294.78	6.14	0.0040	0.0320	0.4138	0.0062	0.5329	0.0111
7 Cox's Bazar	6.98	6.69	115.47	10.16	84.83	10.54	0.0297	0.0285	0.4921	0.0433	0.3615	0.0449
8 Dhaka	6.27	7.03	148.89	6.60	152.86	13.72	0.0187	0.0210	0.4439	0.0197	0.4558	0.0409
9 Dinajpur	7.46	11.50	132.56	13.18	130.52	489.25	0.0187	0.0210	0.4439	0.0197	0.4558	0.0409
10 Faridpur	2.34	4.33	142.63	1.89	196.05	3.00	0.0095	0.0147	0.1690	0.0168	0.1664	0.6237
11 Feni	2.93	16.42	160.82	0.59	164.22	2.21	0.0067	0.0124	0.4072	0.0054	0.5598	0.0086
12 Hatiya	11.88	13.08	211.45	3.99	268.36	6.29	0.0084	0.0473	0.4632	0.0017	0.4730	0.0064
13 Ishurdi	5.11	8.92	190.53	0.84	272.46	1.54	0.0231	0.0254	0.4105	0.0077	0.5210	0.0122
14 Jessore	6.29	1.86	113.95	4.99	130.18	10.49	0.0107	0.0186	0.3974	0.0018	0.5683	0.0032
15 Khepupara	6.29	1.86	113.95	4.99	130.18	10.49	0.0235	0.0070	0.4256	0.0186	0.4862	0.0392
16 Khulna	4.09	3.20	128.92	4.04	165.30	4.06	0.0235	0.0070	0.4256	0.0186	0.4862	0.0392
17 Kutubdia	4.53	8.80	106.86	2.48	84.15	4.30	0.0132	0.0103	0.4164	0.0130	0.5339	0.0131
18 Madaripur	4.03	9.24	90.98	1.54	95.77	2.81	0.0215	0.0417	0.5062	0.0117	0.3986	0.0203
19 M.Court	7.85	3.92	121.67	6.46	148.96	6.42	0.0266	0.0133	0.4121	0.0219	0.5045	0.0217
20 Mongla	9.66	9.50	77.31	6.96	73.65	12.97	0.0197	0.0452	0.4452	0.0075	0.4686	0.0137
21 Mymensingh	1.44	14.28	173.09	9.37	188.61	112.58	0.0508	0.0500	0.4068	0.0366	0.3875	0.0682
22 Patuakhali	3.92	6.83	80.28	2.18	67.11	4.58	0.0029	0.0286	0.3466	0.0188	0.3777	0.2254
23 Rajshahi	7.24	2.55	200.30	3.36	319.28	4.17	0.0238	0.0414	0.4869	0.0132	0.4070	0.0277
24 Rangamati	7.51	2.55	74.88	9.30	50.11	4.25	0.0135	0.0048	0.3731	0.0062	0.5947	0.0078
25 Rangpur	41.83	48.76	180.42	155.39	71.66	3.24E+12	0.0505	0.0171	0.5039	0.0626	0.3372	0.0286
26 Sandwip	5.27	9.36	117.06	2.90	99.54	9.31	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
27 Satkhira	24.18	28.40	98.38	2.12	23.32	6.97E+08	0.0216	0.0385	0.4808	0.0119	0.4089	0.0382
28 Shitakunda	2.83	11.86	48.19	13.05	11.62	14.05	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
29 Srimongol	2.83	11.86	48.19	13.05	11.62	14.05	0.0279	0.1167	0.4743	0.1284	0.1143	0.1383
30 Sylhet	80.73	41.86	145.45	4.03	37.01	3.97E+16	0.0279	0.1167	0.4743	0.1284	0.1143	0.1383
31 Tangail	2.51	7.09	136.09	5.86	166.02	5.66	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
32 Teknaf	9.91	3.93	96.07	4.09	77.67	9.76	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.5287	0.9176	12.1321	0.6676	12.1068	5.6473

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B106. Determination of Best Fit Distribution

Chi-square values of Bright Sunshine Hour Data for different probability distributions

Station	Rank						Scaling					
	Comparison						1	3	5	2	4	6
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	1.00	1.81	18.41	1.80	17.14	31.76
1 Barisal	8.26	28.76	194.47	9.70	143.07	114.83	0.0166	0.0576	0.3896	0.0194	0.2867	0.2301
2 Bhola	3.69	14.86	145.05	7.57	169.67	3.80	0.0107	0.0431	0.4209	0.0220	0.4923	0.0110
3 Bogra	17.24	21.17	169.51	29.01	137.92	90.51	0.0371	0.0455	0.3643	0.0623	0.2964	0.1945
4 Chandpur	3.62	23.24	104.35	35.19	53.01	628.87	0.0043	0.0274	0.1230	0.0415	0.0625	0.7413
5 Chittagong	9.56	27.46	140.95	57.48	74.52	61863.75	0.0002	0.0004	0.0023	0.0009	0.0012	0.9950
6 Comilla	77.74	38.43	138.87	8.54	38.36	8.83E+15	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
7 Cox's Bazar	10.08	23.93	254.78	11.09	251.16	21.25	0.0176	0.0418	0.4452	0.0194	0.4389	0.0371
8 Dhaka	11.74	19.79	181.08	22.75	163.76	2068.14	0.0048	0.0080	0.0734	0.0092	0.0664	0.8382
9 Dinajpur	3.56	16.50	101.79	5.05	78.27	6.29	0.0048	0.0080	0.0734	0.0092	0.0664	0.8382
10 Faridpur	7.01	10.58	151.28	11.93	166.17	40.44	0.0168	0.0780	0.4814	0.0239	0.3701	0.0298
11 Feni	14.20	17.67	192.34	17.98	201.75	40.61	0.0181	0.0273	0.3905	0.0308	0.4289	0.1044
12 Hatiya	9.44	28.50	227.78	25.58	211.44	20124.36	0.0293	0.0365	0.3969	0.0371	0.4164	0.0838
13 Ishurdi	5.80	18.92	137.08	17.12	106.91	8428.82	0.0005	0.0014	0.0110	0.0012	0.0103	0.9756
14 Jessore	6.81	12.90	143.48	11.62	136.24	91.81	0.0007	0.0022	0.0157	0.0020	0.0123	0.9672
15 Khepupara	6.81	12.90	143.48	11.62	136.24	91.81	0.0169	0.0320	0.3562	0.0288	0.3382	0.2279
16 Khulna	6.46	10.00	153.67	11.28	168.65	28.80	0.0169	0.0320	0.3562	0.0288	0.3382	0.2279
17 Kutubdia	66.68	81.20	199.59	3.22	50.50	1.01E+14	0.0171	0.0264	0.4056	0.0298	0.4452	0.0760
18 Madaripur	1.91	4.95	86.67	1.41	107.45	2.83	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
19 M.Court	1.35	13.08	117.42	6.24	93.73	15.93	0.0054	0.0528	0.4739	0.0252	0.3783	0.0643
20 Mongla	18.63	4.50	93.99	16.12	118.10	10.65	0.0093	0.0241	0.4223	0.0069	0.5236	0.0138
21 Mymensingh	14.56	20.14	177.62	25.53	155.91	45.18	0.0711	0.0172	0.3588	0.0615	0.4508	0.0407
22 Patuakhali	3.12	11.83	150.77	4.09	175.28	26.18	0.0332	0.0459	0.4047	0.0582	0.3552	0.1029
23 Rajshahi	11.32	23.93	238.04	35.80	262.64	4897223.26	0.0084	0.0319	0.4061	0.0110	0.4721	0.0705
24 Rangamati	4.00	3.91	117.92	4.66	125.12	1.94	0.0000	0.0000	0.0000	0.0000	0.0001	0.9999
25 Rangpur	3.40	13.59	117.55	18.94	83.54	2005.68	0.0155	0.0152	0.4578	0.0181	0.4858	0.0075
26 Sandwip	4.54	3.91	104.45	4.02	108.77	7.78	0.0015	0.0061	0.0524	0.0084	0.0373	0.8943
27 Satkhira	81.78	42.80	147.46	3.56	46.92	3.44E+15	0.0195	0.0167	0.4474	0.0172	0.4659	0.0333
28 Shitakunda	4.79	8.76	60.03	15.91	26.82	22.69	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
29 Srimongol	4.79	8.76	60.03	15.91	26.82	22.69	0.0345	0.0630	0.4319	0.1145	0.1929	0.1632
30 Sylhet	88.00	38.76	129.38	2.38	32.51	1.90E+17	0.0345	0.0630	0.4319	0.1145	0.1929	0.1632
31 Tangail	15.31	22.55	146.86	37.30	103.33	31631.58	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
32 Teknaf	2.33	11.86	230.86	2.65	298.67	40.31	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.4450	0.8036	8.1928	0.8018	7.6250	14.1318

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B107. Determination of Best Fit Distribution

Chi-square values of Bright Sunshine Hour Data for different probability distribution:

Yearly Average	Station	Rank					Scaling						
		Comparison					1	3	5	2	6	4	
		Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	1.00	2.17	51.35	1.12	130.68	27.38
1	Barisal	1.46	9.45	291.54	2.52	613.08	3.78	0.0016	0.0102	0.3163	0.0027	0.6651	0.0041
2	Bhola	2.05	13.79	189.66	1.14	345.35	4.79	0.0037	0.0248	0.3406	0.0020	0.6203	0.0086
3	Bogra	4.01	16.00	299.30	4.78	584.83	26.11	0.0043	0.0171	0.3201	0.0051	0.6255	0.0279
4	Chandpur	2.23	19.79	321.03	1.55	787.02	0.43	0.0020	0.0175	0.2836	0.0014	0.6952	0.0004
5	Chittagong	2.20	2.85	330.84	3.73	1071.08	5.63	0.0016	0.0020	0.2336	0.0026	0.7562	0.0040
6	Comilla	7.68	32.00	461.20	25.82	971.31	7142.92	0.0009	0.0037	0.0534	0.0030	0.1124	0.8266
7	Cox's Bazar	1.60	6.69	298.44	4.24	712.00	7.09	0.0016	0.0065	0.2897	0.0041	0.6912	0.0069
8	Dhaka	6.85	3.59	244.59	12.01	586.39	8.45	0.0079	0.0042	0.2838	0.0139	0.6804	0.0098
9	Dinajpur	0.99	8.00	316.53	1.42	1074.24	0.46	0.0079	0.0042	0.2838	0.0139	0.6804	0.0098
10	Faridpur	0.93	9.33	394.53	1.97	1346.68	2.34	0.0007	0.0057	0.2258	0.0010	0.7664	0.0003
11	Feni	6.39	20.58	395.02	6.95	1042.52	131.79	0.0005	0.0053	0.2247	0.0011	0.7670	0.0013
12	Hatiya	11.75	18.08	495.16	27.73	1587.37	24.42	0.0040	0.0128	0.2464	0.0043	0.6503	0.0822
13	Ishurdi	3.78	8.92	390.77	8.71	1333.89	7.45	0.0054	0.0084	0.2288	0.0128	0.7334	0.0113
14	Jessore	4.91	21.86	347.27	1.44	725.46	2.13	0.0022	0.0051	0.2228	0.0050	0.7607	0.0042
15	Khepupara	4.91	21.86	347.27	1.44	725.46	2.13	0.0044	0.0198	0.3148	0.0013	0.6577	0.0019
16	Khulna	10.93	9.20	408.89	8.73	1410.52	15.80	0.0044	0.0198	0.3148	0.0013	0.6577	0.0019
17	Kutubdia	4.77	5.20	377.79	12.07	1312.74	9.06	0.0059	0.0049	0.2194	0.0047	0.7567	0.0085
18	Madaripur	2.08	10.19	227.65	0.62	557.65	2.41	0.0028	0.0030	0.2194	0.0070	0.7625	0.0053
19	M.Court	6.97	5.17	283.70	1.94	870.84	10.72	0.0059	0.0044	0.2406	0.0016	0.7384	0.0091
20	Mongla	18.81	4.50	234.48	18.79	703.31	10.36	0.0026	0.0127	0.2844	0.0008	0.6965	0.0030
21	Mymensingh	3.88	11.52	316.67	2.24	877.70	4.87	0.0190	0.0045	0.2368	0.0190	0.7102	0.0105
22	Patuakhali	7.28	7.67	226.08	2.49	614.71	2.93	0.0032	0.0095	0.2602	0.0018	0.7213	0.0040
23	Rajshahi	7.19	22.55	562.18	4.60	1493.49	11.68	0.0085	0.0089	0.2625	0.0029	0.7138	0.0034
24	Rangamati	8.51	6.64	327.56	18.11	1067.15	31.88	0.0034	0.0107	0.2675	0.0022	0.7106	0.0056
25	Rangpur	3.60	13.59	293.70	0.80	631.83	1.66	0.0058	0.0045	0.2244	0.0124	0.7310	0.0218
26	Sandwip	3.18	7.55	301.34	8.09	919.87	4.26	0.0038	0.0144	0.3107	0.0008	0.6685	0.0018
27	Satkhira	8.29	24.80	292.59	19.14	484.45	1.13E+05	0.0026	0.0061	0.2422	0.0065	0.7393	0.0034
28	Shitakunda	7.78	17.38	172.52	7.61	257.02	6.81	0.0001	0.0002	0.0026	0.0002	0.0042	0.9927
29	Srimongol	7.78	17.38	172.52	7.61	257.02	6.81	0.0166	0.0370	0.3678	0.0162	0.5479	0.0145
30	Sylhet	20.47	28.76	250.02	48.95	329.32	1.18E+09	0.0166	0.0370	0.3678	0.0162	0.5479	0.0145
31	Tangail	0.97	11.64	374.56	1.31	1296.19	0.76	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
32	Teknaf	2.00	15.66	376.62	2.29	868.93	0.57	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
Critical Chi Square Value (95% Confidence Level)		5.99	5.99	7.81	5.99	7.81	5.99	0.1497	0.3251	7.6891	0.1681	19.5686	4.0994

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B108. Determination of Best Fit Distribution

Chi-square values of Bright Sunshine Hour Data for different probability distributions
 Yearly Maximum Monthly

Station	Rank						Scaling						Appendix B
	Comparison						3	4	5	1	6	2	
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	1.14	2.13	72.33	1.00	121.03	1.09	
1 Barisal	1.73	10.48	380.08	1.38	679.44	0.81	0.0016	0.0098	0.3539	0.0013	0.6327	0.0008	
2 Bhola	3.73	8.07	198.87	2.00	257.20	4.71	0.0079	0.0170	0.4191	0.0042	0.5420	0.0099	
3 Bogra	7.86	13.59	412.34	6.10	859.22	5.00	0.0060	0.0104	0.3162	0.0047	0.6589	0.0038	
4 Chandpur	2.88	17.72	257.98	1.19	388.75	0.81	0.0043	0.0265	0.3854	0.0018	0.5808	0.0012	
5 Chittagong	10.71	1.69	292.71	11.22	687.82	6.74	0.0106	0.0017	0.2896	0.0111	0.6804	0.0067	
6 Comilla	4.40	8.07	300.62	4.77	439.82	3.52	0.0058	0.0106	0.3949	0.0063	0.5778	0.0046	
7 Cox's Bazar	5.06	9.79	319.65	6.32	544.09	6.44	0.0057	0.0110	0.3586	0.0071	0.6104	0.0072	
8 Dhaka	1.69	10.14	401.08	1.69	924.94	0.72	0.0013	0.0076	0.2993	0.0013	0.6901	0.0005	
9 Dinajpur	2.46	2.50	225.68	10.64	473.34	1.77	0.0013	0.0076	0.2993	0.0013	0.6901	0.0005	
10 Faridpur	7.83	5.58	347.33	3.83	936.51	6.22	0.0034	0.0035	0.3150	0.0149	0.6607	0.0025	
11 Feni	8.40	11.42	324.79	8.12	255.17	1.81	0.0060	0.0043	0.2657	0.0029	0.7164	0.0048	
12 Hatiya	5.32	6.42	292.25	2.89	454.40	5.47	0.0138	0.0187	0.5327	0.0133	0.4185	0.0030	
13 Ishurdi	3.60	5.58	346.54	4.65	927.25	1.48	0.0069	0.0084	0.3812	0.0038	0.5926	0.0071	
14 Jessore	2.24	11.52	449.93	5.48	740.70	1.17	0.0028	0.0043	0.2688	0.0036	0.7193	0.0012	
15 Khepupara	2.24	11.52	449.93	5.48	740.70	1.17	0.0019	0.0095	0.3715	0.0045	0.6116	0.0010	
16 Khulna	1.75	10.00	350.25	1.98	762.00	36.26	0.0019	0.0095	0.3715	0.0045	0.6116	0.0010	
17 Kutubdia	1.94	16.80	416.74	1.75	816.54	0.87	0.0015	0.0086	0.3014	0.0017	0.6556	0.0312	
18 Madaripur	1.72	5.90	192.53	1.99	285.72	1.13	0.0015	0.0134	0.3322	0.0014	0.6508	0.0007	
19 M.Court	2.25	3.08	226.74	2.97	416.55	1.72	0.0034	0.0047	0.3471	0.0045	0.6376	0.0026	
20 Mongla	3.59	2.00	122.47	3.95	160.21	2.12	0.0035	0.0121	0.3937	0.0041	0.5843	0.0023	
21 Mymensingh	2.35	3.24	278.20	5.22	604.66	3.94	0.0122	0.0068	0.4161	0.0134	0.5443	0.0072	
22 Patuakhali	8.03	3.92	233.28	8.32	303.28	4.13	0.0026	0.0036	0.3099	0.0058	0.6736	0.0044	
23 Rajshahi	8.25	8.41	450.94	3.34	708.04	8.36	0.0143	0.0070	0.4159	0.0148	0.5406	0.0074	
24 Rangamati	2.05	2.09	173.12	1.51	263.74	2.67	0.0069	0.0071	0.3798	0.0028	0.5963	0.0070	
25 Rangpur	7.43	17.03	300.03	2.99	322.04	4.39	0.0046	0.0047	0.3889	0.0034	0.5924	0.0060	
26 Sandwip	9.71	18.45	376.11	4.05	644.42	11.56	0.0114	0.0260	0.4588	0.0046	0.4925	0.0067	
27 Satkhira	9.83	24.80	471.79	3.91	875.46	4.23	0.0091	0.0173	0.3534	0.0038	0.6055	0.0109	
28 Shitakunda	2.99	6.69	149.51	1.13	171.23	3.35	0.0071	0.0178	0.3394	0.0028	0.6298	0.0030	
29 Srimongol	2.99	6.69	149.51	1.13	171.23	3.35	0.0089	0.0200	0.4464	0.0034	0.5113	0.0100	
30 Sylhet	2.64	5.31	266.18	1.77	485.77	3.92	0.0089	0.0200	0.4464	0.0034	0.5113	0.0100	
31 Tangail	2.41	3.00	219.30	2.60	395.82	2.31	0.0034	0.0069	0.3477	0.0023	0.6345	0.0051	
32 Teknaf	5.74	6.69	321.17	3.22	580.48	6.20	0.0034	0.0069	0.3477	0.0023	0.6345	0.0051	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1840	0.3433	11.6473	0.1610	19.4890	0.1754	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B109. Determination of Best Fit Distribution

Chi-square values of Bright Sunshine Hour Data for different probability distributions

Yearly Minimum Monthly

							Scaling						Appendix B
							Rank	1	3	5	2	6	4
							Comparison	1.00	2.71	19.45	2.04	31.41	16.74
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	3.62	5.31	64.51	3.63	134.20	2.10	0.0169	0.0249	0.3023	0.0170	0.6290	0.0099	
2 Bhola	2.65	10.21	46.62	3.30	74.47	10.94	0.0179	0.0689	0.3146	0.0222	0.5025	0.0738	
3 Bogra	1.81	6.69	88.54	4.01	161.36	5.69	0.0067	0.0250	0.3303	0.0149	0.6019	0.0212	
4 Chandpur	3.21	6.34	56.02	8.03	87.19	3.91	0.0195	0.0385	0.3401	0.0487	0.5294	0.0237	
5 Chittagong	4.40	15.54	101.13	11.48	138.62	16.91	0.0153	0.0539	0.3511	0.0398	0.4812	0.0587	
6 Comilla	14.81	33.07	99.34	5.08	59.83	<i>2.62E+07</i>	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
7 Cox's Bazar	2.08	14.97	61.89	9.63	59.88	10.13	0.0131	0.0944	0.3903	0.0607	0.3776	0.0639	
8 Dhaka	5.27	3.93	72.00	21.90	117.30	14.05	0.0225	0.0168	0.3071	0.0934	0.5003	0.0599	
9 Dinajpur	3.31	3.50	49.28	3.61	93.47	1.74	0.0225	0.0168	0.3071	0.0934	0.5003	0.0599	
10 Faridpur	1.60	4.75	113.71	2.78	287.54	3.60	0.0214	0.0226	0.3181	0.0233	0.6034	0.0112	
11 Feni	14.90	23.50	93.18	13.47	69.47	<i>9.68E+04</i>	0.0039	0.0115	0.2747	0.0067	0.6946	0.0087	
12 Hatiya	4.02	5.17	76.70	6.13	152.46	5.84	0.0002	0.0002	0.0010	0.0001	0.0007	0.9978	
13 Ishurdi	4.78	12.67	122.99	1.73	263.10	1.50	0.0160	0.0206	0.3064	0.0245	0.6091	0.0233	
14 Jessore	4.97	36.34	115.14	8.40	104.78	6.73	0.0118	0.0311	0.3024	0.0043	0.6468	0.0037	
15 Khepupara	4.97	36.34	115.14	8.40	104.78	6.73	0.0180	0.1315	0.4166	0.0304	0.3791	0.0244	
16 Khulna	11.12	29.20	84.23	0.82	54.08	<i>9.93E+05</i>	0.0180	0.1315	0.4166	0.0304	0.3791	0.0244	
17 Kutubdia	13.01	22.00	79.11	11.60	61.45	<i>4.15E+06</i>	0.0000	0.0000	0.0001	0.0000	0.0001	0.9998	
18 Madaripur	5.14	6.86	89.06	4.95	171.60	4.16	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
19 M.Court	2.73	6.42	70.48	9.99	131.58	8.45	0.0119	0.0279	0.3069	0.0435	0.5730	0.0368	
20 Mongla	2.47	2.00	40.05	7.64	132.82	0.58	0.0182	0.0243	0.3161	0.0176	0.6090	0.0147	
21 Mymensingh	4.12	12.55	84.36	13.60	114.38	11.10	0.0133	0.0108	0.2158	0.0411	0.7158	0.0032	
22 Patuakhali	3.82	2.25	49.50	11.62	117.05	6.82	0.0172	0.0523	0.3513	0.0567	0.4764	0.0462	
23 Rajshahi	0.53	13.93	118.59	1.05	193.59	1.93	0.0200	0.0118	0.2591	0.0608	0.6127	0.0357	
24 Rangamati	10.85	9.36	71.12	3.49	151.12	5.22	0.0016	0.0423	0.3598	0.0032	0.5873	0.0059	
25 Rangpur	2.01	9.10	75.40	12.24	91.47	21.81	0.0432	0.0373	0.2831	0.0139	0.6017	0.0208	
26 Sandwip	1.65	11.18	77.43	2.10	128.14	1.22	0.0095	0.0429	0.3556	0.0577	0.4314	0.1029	
27 Satkhira	7.94	26.00	80.18	17.89	53.26	1689.57	0.0074	0.0504	0.3492	0.0095	0.5779	0.0055	
28 Shitakunda	2.94	6.69	44.58	2.33	54.29	5.67	0.0042	0.0139	0.0428	0.0095	0.0284	0.9012	
29 Srimongol	2.94	6.69	44.58	2.33	54.29	5.67	0.0252	0.0574	0.3826	0.0200	0.4660	0.0487	
30 Sylhet	6.05	24.97	77.98	9.65	47.61	606.70	0.0252	0.0574	0.3826	0.0200	0.4660	0.0487	
31 Tangail	0.89	11.18	67.12	6.59	88.49	5.10	0.0078	0.0323	0.1009	0.0125	0.0616	0.7849	
32 Teknaf	0.24	10.83	47.84	9.80	63.95	4.81	0.0078	0.0323	0.1009	0.0125	0.0616	0.7849	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.4363	1.1816	8.4854	0.8887	13.7038	7.3043	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B110. Determination of Best Fit Distribution

Chi-square values of Bright Sunshine Hour Data for different probability distributions
Average Pre-Monsoon(Mar-May)

Station	Rank						Scaling						Appendix B
	Comparison						1	3	5	2	6	4	
	1.00	2.93	62.12	1.27	117.09	5.82	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	3.10	21.17	212.11	13.27	222.80	27.02	0.0062	0.0424	0.4247	0.0266	0.4461	0.0541	
2 Bhola	1.28	10.21	133.30	2.95	166.61	0.40	0.0041	0.0325	0.4235	0.0094	0.5293	0.0013	
3 Bogra	6.00	3.24	264.07	3.95	568.86	14.53	0.0070	0.0038	0.3068	0.0046	0.6610	0.0169	
4 Chandpur	2.73	4.62	187.48	3.95	321.60	4.40	0.0052	0.0088	0.3572	0.0075	0.6128	0.0084	
5 Chittagong	1.64	11.69	245.92	2.30	416.60	14.38	0.0024	0.0169	0.3551	0.0033	0.6016	0.0208	
6 Comilla	4.45	25.57	306.34	8.05	428.82	9.58	0.0057	0.0327	0.3913	0.0103	0.5478	0.0122	
7 Cox's Bazar	0.91	16.34	243.66	6.11	313.84	82.42	0.0014	0.0246	0.3673	0.0092	0.4732	0.1243	
8 Dhaka	1.25	11.17	414.14	3.72	844.81	0.78	0.0010	0.0088	0.3246	0.0029	0.6621	0.0006	
9 Dinajpur	1.05	11.00	236.50	1.36	466.82	6.07	0.0010	0.0088	0.3246	0.0029	0.6621	0.0006	
10 Faridpur	9.57	4.75	399.17	24.38	1236.09	16.24	0.0015	0.0152	0.3272	0.0019	0.6458	0.0084	
11 Feni	1.81	11.42	312.00	0.68	742.46	4.03	0.0057	0.0028	0.2362	0.0144	0.7313	0.0096	
12 Hatiya	6.58	23.08	321.77	7.68	522.45	473.24	0.0017	0.0106	0.2909	0.0006	0.6923	0.0038	
13 Ishurdi	4.24	20.58	501.24	3.58	1302.45	13.86	0.0049	0.0170	0.2375	0.0057	0.3856	0.3493	
14 Jessore	6.93	17.72	393.34	1.67	715.48	12.52	0.0023	0.0112	0.2715	0.0019	0.7056	0.0075	
15 Khepupara	6.93	17.72	393.34	1.67	715.48	12.52	0.0060	0.0154	0.3427	0.0015	0.6234	0.0109	
16 Khulna	8.37	2.80	345.66	13.60	811.85	8.03	0.0060	0.0154	0.3427	0.0015	0.6234	0.0109	
17 Kutubdia	4.72	14.00	255.79	5.89	392.18	28.18	0.0070	0.0024	0.2904	0.0114	0.6820	0.0067	
18 Madaripur	8.73	15.90	240.87	0.99	498.51	3.29	0.0067	0.0200	0.3650	0.0084	0.5597	0.0402	
19 M.Court	3.41	5.17	262.39	2.92	607.07	12.83	0.0038	0.0058	0.2936	0.0033	0.6792	0.0143	
20 Mongla	10.82	2.00	181.09	21.25	556.65	8.07	0.0114	0.0207	0.3135	0.0013	0.6489	0.0043	
21 Mymensingh	1.63	17.38	291.26	2.19	529.68	120.70	0.0139	0.0026	0.2322	0.0273	0.7138	0.0104	
22 Patuakhali	1.66	8.92	167.33	1.16	275.46	0.61	0.0017	0.0181	0.3025	0.0023	0.5501	0.1254	
23 Rajshahi	0.37	11.52	398.38	7.94	961.60	36.67	0.0037	0.0196	0.3676	0.0026	0.6052	0.0013	
24 Rangamati	7.41	9.36	324.50	8.39	840.34	13.18	0.0003	0.0081	0.2812	0.0056	0.6789	0.0259	
25 Rangpur	1.46	7.72	197.58	1.55	313.36	3.96	0.0062	0.0078	0.2697	0.0070	0.6984	0.0110	
26 Sandwip	4.20	4.82	317.76	5.52	940.52	7.00	0.0028	0.0147	0.3759	0.0030	0.5962	0.0075	
27 Satkhira	0.69	9.20	318.34	2.39	665.15	3.01	0.0033	0.0038	0.2483	0.0043	0.7349	0.0055	
28 Shitakunda	8.08	16.00	197.12	1.20	260.00	7.27	0.0007	0.0092	0.3187	0.0024	0.6660	0.0030	
29 Srimongol	8.08	16.00	197.12	1.20	260.00	7.27	0.0165	0.0327	0.4026	0.0024	0.5310	0.0148	
30 Sylhet	4.10	9.79	226.72	9.09	416.64	18.73	0.0165	0.0327	0.4026	0.0024	0.5310	0.0148	
31 Tangail	2.80	7.55	260.08	1.24	634.65	4.84	0.0060	0.0143	0.3309	0.0133	0.6082	0.0273	
32 Teknaf	3.26	12.21	249.80	1.40	284.59	5.18	0.0060	0.0143	0.3309	0.0133	0.6082	0.0273	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1682	0.4934	10.4497	0.2143	19.6950	0.9794	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B111. Determination of Best Fit Distribution

Chi-square values of Bright Sunshine Hour Data for different probability distributions

Average Monsoon(Jun-Oct)

Scaling

Appendix B

Station	Rank						Scaling					
	1	3	5	2	6	4	1.00	2.10	41.97	1.09	102.06	13.68
1 Barisal	1.08	11.52	173.06	4.22	354.29	6.22	0.0020	0.0209	0.3144	0.0077	0.6437	0.0113
2 Bhola	5.31	13.07	114.03	4.89	196.35	220.20	0.0096	0.0236	0.2059	0.0088	0.3545	0.3976
3 Bogra	3.26	7.03	209.79	1.59	531.62	2.25	0.0043	0.0093	0.2777	0.0021	0.7036	0.0030
4 Chandpur	9.52	20.83	240.91	6.52	571.41	5.48	0.0111	0.0244	0.2819	0.0076	0.6686	0.0064
5 Chittagong	2.90	19.38	363.61	4.38	1089.07	48.70	0.0019	0.0127	0.2380	0.0029	0.7127	0.0319
6 Comilla	2.26	19.14	303.40	1.90	742.01	25.54	0.0021	0.0175	0.2773	0.0017	0.6781	0.0233
7 Cox's Bazar	1.45	10.83	182.92	3.11	391.18	2.71	0.0025	0.0183	0.3089	0.0053	0.6605	0.0046
8 Dhaka	16.20	5.31	191.09	16.24	385.53	15.17	0.0257	0.0084	0.3035	0.0258	0.6124	0.0241
9 Dinajpur	3.26	1.50	140.91	2.23	371.25	2.79	0.0257	0.0084	0.3035	0.0258	0.6124	0.0241
10 Faridpur	12.73	8.50	303.40	6.69	1052.86	18.18	0.0062	0.0029	0.2700	0.0043	0.7113	0.0053
11 Feni	3.35	5.58	216.38	3.06	670.45	4.49	0.0091	0.0061	0.2163	0.0048	0.7508	0.0130
12 Hatiya	6.10	8.08	257.43	3.53	836.61	14.12	0.0037	0.0062	0.2395	0.0034	0.7422	0.0050
13 Ishurdi	2.86	2.67	173.52	2.39	472.51	2.10	0.0054	0.0072	0.2287	0.0031	0.7431	0.0125
14 Jessore	2.51	13.59	185.72	5.38	276.80	1.77	0.0044	0.0041	0.2645	0.0036	0.7202	0.0032
15 Khepupara	2.51	13.59	185.72	5.38	276.80	1.77	0.0052	0.0280	0.3823	0.0111	0.5698	0.0037
16 Khulna	0.92	7.60	229.93	2.94	730.89	1.68	0.0052	0.0280	0.3823	0.0111	0.5698	0.0037
17 Kutubdia	1.35	14.00	239.99	1.86	592.72	0.44	0.0009	0.0078	0.2361	0.0030	0.7504	0.0017
18 Madaripur	1.26	3.05	121.34	1.24	341.23	7.02	0.0016	0.0165	0.2822	0.0022	0.6970	0.0005
19 M.Court	1.70	11.42	177.84	1.46	393.21	24.54	0.0028	0.0187	0.2915	0.0024	0.6444	0.0402
20 Mongla	11.92	8.25	339.92	12.73	2565.16	19.64	0.0027	0.0064	0.2554	0.0026	0.7182	0.0148
21 Mymensingh	2.38	12.90	189.97	9.60	440.72	1.03	0.0040	0.0028	0.1149	0.0043	0.8673	0.0066
22 Patuakhali	3.90	3.92	126.25	3.96	373.22	5.05	0.0036	0.0196	0.2893	0.0146	0.6712	0.0016
23 Rajshahi	0.33	12.90	219.09	0.60	438.19	2.77	0.0076	0.0076	0.2445	0.0077	0.7229	0.0098
24 Rangamati	15.46	12.09	257.45	11.76	708.12	30.36	0.0005	0.0191	0.3251	0.0009	0.6503	0.0041
25 Rangpur	1.11	8.07	179.80	2.71	323.57	1.06	0.0149	0.0117	0.2487	0.0114	0.6840	0.0293
26 Sandwip	2.33	6.18	185.64	1.60	493.74	1.90	0.0021	0.0156	0.3482	0.0053	0.6267	0.0021
27 Satkhira	2.25	4.80	165.01	3.78	406.20	7.12	0.0034	0.0089	0.2685	0.0023	0.7141	0.0028
28 Shitakunda	6.06	10.83	145.49	5.17	303.64	2.75	0.0038	0.0081	0.2801	0.0064	0.6895	0.0121
29 Srimongol	6.06	10.83	145.49	5.17	303.64	2.75	0.0128	0.0228	0.3070	0.0109	0.6407	0.0058
30 Sylhet	7.12	21.17	110.53	41.75	116.44	99211.82	0.0128	0.0228	0.3070	0.0109	0.6407	0.0058
31 Tangail	3.59	13.91	208.74	2.97	497.30	10.31	0.0001	0.0002	0.0011	0.0004	0.0012	0.9970
32 Teknaf	9.65	27.72	316.22	7.61	729.12	24.08	0.0001	0.0002	0.0011	0.0004	0.0012	0.9970
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1977	0.4149	8.2954	0.2147	20.1735	2.7038

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B112. Determination of Best Fit Distribution

Chi-square values of Bright Sunshine Hour Data for different probability distributions
Average Post-Monsoon(Nov-Feb)

Station	Rank						Scaling						Appendix B
	Comparison						1	3	5	2	6	4	
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	1.00	1.95	36.58	1.43	55.36	25.30	
1 Barisal	5.17	17.36	283.89	8.86	433.58	55.78	0.0064	0.0216	0.3528	0.0110	0.5389	0.0693	
2 Bhola	7.19	15.41	198.21	2.03	291.28	5.05	0.0138	0.0297	0.3818	0.0039	0.5611	0.0097	
3 Bogra	9.45	14.50	173.11	11.62	177.38	607.10	0.0095	0.0146	0.1743	0.0117	0.1786	0.6113	
4 Chandpur	2.17	11.64	188.87	3.69	292.88	9.34	0.0043	0.0229	0.3714	0.0073	0.5759	0.0184	
5 Chittagong	2.51	6.00	189.50	1.65	301.63	5.21	0.0050	0.0118	0.3741	0.0033	0.5955	0.0103	
6 Comilla	13.96	23.56	273.18	16.20	359.14	278.21	0.0145	0.0244	0.2833	0.0168	0.3725	0.2885	
7 Cox's Bazar	1.91	14.86	275.66	0.73	406.68	2.68	0.0027	0.0211	0.3924	0.0010	0.5789	0.0038	
8 Dhaka	10.31	6.64	183.74	14.49	258.09	23.67	0.0207	0.0134	0.3697	0.0292	0.5194	0.0476	
9 Dinajpur	1.50	4.95	196.26	1.00	470.50	1.88	0.0207	0.0134	0.3697	0.0292	0.5194	0.0476	
10 Faridpur	7.61	15.91	244.44	9.54	374.11	97.62	0.0022	0.0073	0.2903	0.0015	0.6959	0.0028	
11 Feni	28.75	26.78	232.18	16.34	253.49	16435.81	0.0102	0.0212	0.3263	0.0127	0.4993	0.1303	
12 Hatiya	2.83	20.26	284.22	9.62	446.95	42.26	0.0017	0.0016	0.0137	0.0010	0.0149	0.9672	
13 Ishurdi	2.14	12.43	267.75	1.99	526.03	17.22	0.0035	0.0251	0.3526	0.0119	0.5544	0.0524	
14 Jessore	1.93	14.50	251.26	6.72	422.18	50.85	0.0026	0.0150	0.3235	0.0024	0.6356	0.0208	
15 Khepupara	1.93	14.50	251.26	6.72	422.18	50.85	0.0026	0.0194	0.3362	0.0090	0.5648	0.0680	
16 Khulna	13.83	13.08	272.99	7.55	486.08	184.59	0.0026	0.0194	0.3362	0.0090	0.5648	0.0680	
17 Kutubdia	13.65	29.75	253.45	22.95	252.61	3.11E+06	0.0141	0.0134	0.2791	0.0077	0.4970	0.1887	
18 Madaripur	0.76	5.00	122.42	4.87	200.53	1.73	0.0000	0.0000	0.0001	0.0000	0.0001	0.9998	
19 M.Court	0.56	7.22	161.29	3.76	238.58	3.08	0.0013	0.0174	0.3891	0.0091	0.5756	0.0074	
20 Mongla	10.84	3.71	94.08	22.97	190.61	7.77	0.0023	0.0149	0.3651	0.0145	0.5980	0.0052	
21 Mymensingh	3.86	11.29	188.44	8.33	255.02	937.88	0.0329	0.0113	0.2851	0.0696	0.5776	0.0235	
22 Patuakhali	8.57	6.35	174.37	4.91	257.88	6.46	0.0027	0.0080	0.1341	0.0059	0.1815	0.6676	
23 Rajshahi	3.43	19.86	414.54	4.12	906.25	89.50	0.0187	0.0138	0.3803	0.0107	0.5624	0.0141	
24 Rangamati	5.50	0.67	154.16	3.73	246.03	3.31	0.0024	0.0138	0.2883	0.0029	0.6303	0.0623	
25 Rangpur	3.53	24.86	199.89	7.59	188.36	98.96	0.0133	0.0016	0.3729	0.0090	0.5951	0.0080	
26 Sandwip	2.90	3.05	152.07	2.66	255.31	6.31	0.0067	0.0475	0.3821	0.0145	0.3600	0.1891	
27 Satkhira	4.08	12.25	258.37	0.67	464.95	11.77	0.0069	0.0072	0.3601	0.0063	0.6046	0.0149	
28 Shitakunda	2.31	4.50	68.83	4.49	54.92	3.07	0.0054	0.0163	0.3435	0.0009	0.6182	0.0157	
29 Srimongol	2.31	4.50	68.83	4.49	54.92	3.07	0.0167	0.0326	0.4983	0.0325	0.3976	0.0222	
30 Sylhet	22.34	28.79	185.15	156.45	129.56	1.14E+09	0.0167	0.0326	0.4983	0.0325	0.3976	0.0222	
31 Tangail	4.28	14.95	247.79	6.21	443.71	63.13	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
32 Teknaf	6.84	6.29	249.39	0.35	419.34	8.12	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.2631	0.5124	9.6248	0.3770	14.5657	6.6570	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B113. Determination of Best Fit Distribution
Chi-square values of Relative Humidity Data for different probability distributions
January

							Scaling					Appendix B	
							Rank	1	3	6	2	5	4
							Comparison	1.00	1.71	56.21	1.03	9.58	3.65
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	5.88	16.00	513.87	8.38	97.41	53.80	0.0085	0.0230	0.7390	0.0120	0.1401	0.0774	
2 Bhola	3.31	16.00	503.84	3.64	95.44	22.24	0.0051	0.0248	0.7818	0.0057	0.1481	0.0345	
3 Bogra	6.06	10.83	408.58	12.85	78.10	2.30	0.0117	0.0209	0.7877	0.0248	0.1506	0.0044	
4 Chandpur	0.43	10.14	466.25	1.30	104.83	7.82	0.0007	0.0172	0.7892	0.0022	0.1774	0.0132	
5 Chittagong	1.45	15.31	450.08	1.60	82.23	9.08	0.0026	0.0274	0.8041	0.0029	0.1469	0.0162	
6 Comilla	1.46	9.10	453.66	3.73	99.05	11.44	0.0025	0.0157	0.7843	0.0064	0.1712	0.0198	
7 Cox's Bazar	5.77	15.66	500.70	3.53	116.23	3.88	0.0089	0.0242	0.7754	0.0055	0.1800	0.0060	
8 Dhaka	4.67	21.17	560.23	1.51	127.76	18.33	0.0064	0.0289	0.7636	0.0021	0.1741	0.0250	
9 Dinajpur	9.57	2.55	230.76	11.43	20.58	13.46	0.0064	0.0289	0.7636	0.0021	0.1741	0.0250	
10 Faridpur	8.14	12.55	573.81	8.32	150.54	9.70	0.0332	0.0088	0.8003	0.0396	0.0714	0.0467	
11 Feni	2.53	8.76	389.14	2.27	67.11	9.64	0.0107	0.0164	0.7520	0.0109	0.1973	0.0127	
12 Hatiya	2.86	6.34	318.08	2.61	46.76	7.12	0.0053	0.0183	0.8116	0.0047	0.1400	0.0201	
13 Ishurdi	7.37	4.97	390.13	6.43	87.56	5.65	0.0075	0.0165	0.8288	0.0068	0.1218	0.0185	
14 Jessore	3.00	9.10	400.56	5.07	72.58	6.98	0.0147	0.0099	0.7770	0.0128	0.1744	0.0113	
15 Khepupara	7.43	23.59	296.66	2.19	17.20	11.74	0.0060	0.0183	0.8055	0.0102	0.1459	0.0140	
16 Khulna	2.49	9.79	538.03	2.38	145.48	4.38	0.0207	0.0657	0.8268	0.0061	0.0479	0.0327	
17 Kutubdia	2.27	11.86	374.82	3.01	55.19	15.13	0.0035	0.0139	0.7658	0.0034	0.2071	0.0062	
18 Madaripur	15.40	3.59	260.49	6.71	34.90	17.01	0.0049	0.0257	0.8108	0.0065	0.1194	0.0327	
19 M.Court	19.64	22.21	505.89	16.27	85.74	86.86	0.0267	0.0301	0.6868	0.0221	0.1164	0.1179	
20 Mongla	3.89	5.50	260.87	6.64	42.79	18.96	0.0455	0.0106	0.7705	0.0198	0.1032	0.0503	
21 Mymensingh	6.90	6.69	264.45	7.06	24.73	10.36	0.0115	0.0162	0.7703	0.0196	0.1264	0.0560	
22 Patuakhali	3.74	17.03	334.36	5.34	28.94	227.40	0.0215	0.0209	0.8259	0.0221	0.0772	0.0324	
23 Rajshahi	0.97	11.17	423.53	1.66	78.91	3.42	0.0061	0.0276	0.5421	0.0087	0.0469	0.3687	
24 Rangamati	4.36	19.10	515.52	3.51	96.48	6.61	0.0019	0.0215	0.8150	0.0032	0.1518	0.0066	
25 Rangpur	9.27	6.69	398.11	17.97	70.33	100.16	0.0068	0.0296	0.7985	0.0054	0.1495	0.0102	
26 Sandwip	5.64	9.10	369.67	9.01	54.50	120.79	0.0154	0.0111	0.6607	0.0298	0.1167	0.1662	
27 Satkhira	16.79	4.97	295.59	9.15	39.84	21.21	0.0099	0.0160	0.6500	0.0158	0.0958	0.2124	
28 Shitakunda	14.30	6.34	253.13	18.29	27.38	17.00	0.0433	0.0128	0.7627	0.0236	0.1028	0.0547	
29 Srimongol	24.43	28.41	657.73	33.73	132.59	45.70	0.0425	0.0189	0.7523	0.0544	0.0814	0.0505	
30 Sylhet	4.96	23.93	403.76	5.96	46.19	1.28	0.0265	0.0308	0.7129	0.0366	0.1437	0.0495	
31 Tangail	6.71	13.91	532.82	5.93	147.06	31.92	0.0102	0.0492	0.8306	0.0123	0.0950	0.0026	
32 Teknaf	5.59	3.24	166.06	4.51	8.20	6.20	0.0102	0.0492	0.8306	0.0123	0.0950	0.0026	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.4372	0.7492	24.5764	0.4503	4.1897	1.5973	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B114. Determination of Best Fit Distribution
Chi-square values of Relative Humidity Data for different probability distributions
February

Station	Scaling						Appendix B								
	Rank 1		Rank 3		Rank 6		Rank 2		Rank 5		Rank 4				
	Normal	EV-I	Uniform	EV-I	Exponential	EV-I	Log-Normal	EV-I	Poisson	EV-I	Normal	EV-I			
1 Barisal	0.91	8.44	9.10	8.44	528.80	8.44	2.98	145.47	8.44	0.0013	0.0131	0.7601	0.0043	0.2091	0.0121
2 Bhola	5.56	4.16	12.90	4.16	496.60	4.16	8.89	113.51	4.16	0.0087	0.0201	0.7740	0.0139	0.1769	0.0065
3 Bogra	4.95	4.97	315.45	4.97	3.48	51.71	19.25	0.0124	0.0124	0.0124	0.0124	0.7890	0.0087	0.1293	0.0481
4 Chandpur	8.66	4.56	6.00	4.56	659.71	4.56	6.52	270.70	4.56	0.0091	0.0063	0.6900	0.0068	0.2831	0.0048
5 Chittagong	2.90	1.24	10.48	1.24	371.20	1.24	6.37	67.22	1.24	0.0063	0.0228	0.8080	0.0139	0.1463	0.0027
6 Comilla	1.05	4.21	7.38	4.21	489.22	4.21	129.63	6.70	4.21	0.0016	0.0116	0.7666	0.0066	0.2031	0.0105
7 Cox's Bazar	0.77	3.06	11.52	3.06	450.40	3.06	98.52	11.70	3.06	0.0013	0.0200	0.7820	0.0053	0.1710	0.0203
8 Dhaka	3.72	3.94	3.24	3.94	423.34	3.94	8.15	131.77	3.94	0.0065	0.0056	0.7373	0.0142	0.2295	0.0069
9 Dinajpur	19.88	22.04	16.00	22.04	271.08	22.04	11.58	24.84	22.04	0.0065	0.0056	0.7373	0.0142	0.2295	0.0069
10 Faridpur	0.74	5.18	10.48	5.18	437.49	5.18	92.06	5.18	5.18	0.0544	0.0438	0.7418	0.0317	0.0680	0.0603
11 Feni	1.81	2.77	4.62	2.77	424.92	2.77	4.38	98.93	2.77	0.0014	0.0191	0.7976	0.0047	0.1678	0.0095
12 Hatiya	3.51	3.48	4.62	3.48	374.22	3.48	11.30	77.28	3.48	0.0034	0.0086	0.7907	0.0081	0.1841	0.0052
13 Ishurdi	5.80	13.50	9.10	13.50	283.71	13.50	6.83	30.42	13.50	0.0074	0.0097	0.7888	0.0238	0.1629	0.0073
14 Jessore	5.21	13.35	11.17	13.35	354.75	13.35	14.33	49.52	13.35	0.0166	0.0261	0.8121	0.0195	0.0871	0.0387
15 Khepupara	3.03	8.11	20.14	8.11	343.33	8.11	2.60	30.48	8.11	0.0116	0.0249	0.7913	0.0320	0.1105	0.0298
16 Khulna	1.00	0.48	16.34	0.48	606.46	0.48	3.91	168.23	0.48	0.0074	0.0494	0.8422	0.0064	0.0748	0.0199
17 Kutubdia	1.18	1.30	8.41	1.30	381.70	1.30	2.76	64.07	1.30	0.0013	0.0205	0.7615	0.0049	0.2112	0.0006
18 Madaripur	6.03	7.25	1.17	7.25	217.57	7.25	9.71	18.17	7.25	0.0026	0.0183	0.8308	0.0060	0.1395	0.0028
19 M.Court	3.43	24.09	13.24	24.09	351.48	24.09	5.16	42.62	24.09	0.0078	0.0301	0.7988	0.0117	0.0969	0.0548
20 Mongla	16.00	22.93	9.50	22.93	472.74	22.93	11.33	164.57	22.93	0.0232	0.0045	0.8371	0.0374	0.0699	0.0279
21 Mymensingh	24.17	139.87	44.28	139.87	346.48	139.87	15.16	24.35	139.87	0.0229	0.0136	0.6782	0.0163	0.2361	0.0329
22 Patuakhali	2.91	222.05	15.66	222.05	314.68	222.05	5.02	25.85	222.05	0.0407	0.0745	0.5830	0.0255	0.0410	0.2354
23 Rajshahi	3.29	6.44	8.76	6.44	358.92	6.44	5.07	58.44	6.44	0.0050	0.0267	0.5368	0.0086	0.0441	0.3788
24 Rangamati	6.82	8.32	2.21	8.32	446.96	8.32	8.62	120.06	8.32	0.0075	0.0199	0.8140	0.0115	0.1325	0.0146
25 Rangpur	3.05	79.27	13.93	79.27	356.68	79.27	7.57	43.81	79.27	0.0115	0.0037	0.7538	0.0145	0.2025	0.0140
26 Sandwip	7.27	27.10	6.69	27.10	378.87	27.10	15.38	67.99	27.10	0.0060	0.0276	0.7073	0.0150	0.0869	0.1572
27 Satkhira	8.59	34.88	7.72	34.88	232.50	34.88	13.24	17.29	34.88	0.0144	0.0133	0.7528	0.0306	0.1351	0.0539
28 Shitakunda	5.51	52.86	17.03	52.86	282.14	52.86	3.30	19.04	52.86	0.0273	0.0246	0.7399	0.0421	0.0550	0.1110
29 Srimongol	8.14	107.49	25.31	107.49	384.93	107.49	11.91	38.35	107.49	0.0145	0.0448	0.7427	0.0087	0.0501	0.1391
30 Sylhet	3.09	6.66	5.66	6.66	420.34	6.66	6.40	102.44	6.66	0.0141	0.0439	0.6681	0.0207	0.0666	0.1866
31 Tangail	2.74	14.69	9.82	14.69	374.17	14.69	6.87	81.68	14.69	0.0057	0.0104	0.7719	0.0118	0.1881	0.0122
32 Teknaf	4.49	4.61	17.72	4.61	176.04	4.61	6.72	4.35	4.61	0.0057	0.0104	0.7719	0.0118	0.1881	0.0122
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	5.99	5.99	5.99	5.99	5.99	5.99	5.99	0.3660	0.6861	24.1571	0.4910	4.5765	1.7233

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B115. Analysis to Find The Best Fit Distribution
Chi-square values of Relative Humidity Data for different probability distributions
March

Station	Scaling						Appendix B					
	Rank						Comparison					
	1	3	6	2	4	5	1.00	1.92	65.71	1.34	7.31	10.51
Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	1.03	11.52	423.84	2.79	77.40	13.44	0.0019	0.0217	0.7997	0.0053	0.1460	0.0254
2 Bhola	0.42	10.14	365.87	0.76	54.66	14.15	0.0009	0.0227	0.8203	0.0017	0.1226	0.0317
3 Bogra	2.98	9.45	207.58	2.30	11.18	11.00	0.0122	0.0386	0.8490	0.0094	0.0457	0.0450
4 Chandpur	1.58	9.45	376.59	2.27	66.63	1.96	0.0034	0.0206	0.8214	0.0050	0.1453	0.0043
5 Chittagong	4.50	2.55	268.72	6.00	31.15	6.49	0.0141	0.0080	0.8413	0.0188	0.0975	0.0203
6 Comilla	10.09	7.38	437.76	14.03	99.40	19.18	0.0172	0.0126	0.7447	0.0239	0.1691	0.0326
7 Cox's Bazar	2.09	8.07	374.93	7.58	61.54	6.22	0.0045	0.0175	0.8143	0.0165	0.1337	0.0135
8 Dhaka	4.90	6.34	256.44	4.53	26.35	7.43	0.0160	0.0207	0.8380	0.0148	0.0861	0.0243
9 Dinajpur	2.82	8.76	135.96	3.23	2.12	10.82	0.0160	0.0207	0.8380	0.0148	0.0861	0.0243
10 Faridpur	0.83	11.86	273.66	3.53	24.71	12.72	0.0172	0.0535	0.8305	0.0197	0.0130	0.0661
11 Feni	169.34	88.41	281.32	4.48	100.01	5.72E+29	0.0025	0.0362	0.8361	0.0108	0.0755	0.0388
12 Hatiya	1.18	14.28	333.99	4.09	34.07	17.38	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
13 Ishurdi	1.30	5.31	166.10	2.28	5.26	5.01	0.0029	0.0352	0.8247	0.0101	0.0841	0.0429
14 Jessore	3.79	9.79	260.28	3.26	22.74	37.58	0.0070	0.0287	0.8966	0.0123	0.0284	0.0270
15 Khepupara	1.21	5.66	228.10	0.43	14.37	3.58	0.0112	0.0290	0.7713	0.0097	0.0674	0.1114
16 Khulna	0.70	9.79	301.85	1.02	35.44	2.88	0.0048	0.0223	0.9003	0.0017	0.0567	0.0141
17 Kutubdia	3.56	16.00	569.23	3.96	127.47	7.06	0.0020	0.0278	0.8583	0.0029	0.1008	0.0082
18 Madaripur	9.44	3.24	210.25	8.96	18.25	12.43	0.0049	0.0220	0.7827	0.0054	0.1753	0.0097
19 M.Court	14.93	21.17	396.01	33.67	44.76	5.76E+07	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
20 Mongla	3.27	1.50	276.83	4.53	70.12	4.85	0.0360	0.0123	0.8008	0.0341	0.0695	0.0473
21 Mymensingh	15.18	11.52	216.79	18.72	16.07	26.82	0.0091	0.0042	0.7666	0.0125	0.1942	0.0134
22 Patuakhali	4.45	18.76	365.68	8.88	39.90	17.21	0.0497	0.0377	0.7106	0.0614	0.0527	0.0879
23 Rajshahi	1.36	6.69	192.45	3.11	9.93	3.61	0.0098	0.0412	0.8039	0.0195	0.0877	0.0378
24 Rangamati	4.99	5.31	273.20	7.90	34.57	19.04	0.0063	0.0308	0.8862	0.0143	0.0457	0.0166
25 Rangpur	2.90	7.38	241.26	2.34	19.72	29.91	0.0145	0.0154	0.7919	0.0229	0.1002	0.0552
26 Sandwip	5.24	6.00	334.70	12.89	47.19	17.29	0.0096	0.0243	0.7949	0.0077	0.0650	0.0985
27 Satkhira	5.34	7.72	205.65	9.41	10.69	54.59	0.0124	0.0142	0.7907	0.0304	0.1115	0.0409
28 Shitakunda	4.48	2.55	243.57	6.37	25.78	9.49	0.0182	0.0263	0.7009	0.0321	0.0364	0.1861
29 Srimongol	5.51	24.97	291.98	8.82	15.70	546.63	0.0153	0.0087	0.8335	0.0218	0.0882	0.0325
30 Sylhet	5.20	2.55	224.89	5.28	21.86	8.57	0.0062	0.0279	0.3267	0.0099	0.0176	0.6117
31 Tangail	3.51	1.64	285.08	4.53	57.51	3.16	0.0194	0.0095	0.8380	0.0197	0.0815	0.0319
32 Teknaf	4.43	14.97	239.01	1.40	15.04	0.79	0.0194	0.0095	0.8380	0.0197	0.0815	0.0319
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.3645	0.7003	23.9502	0.4887	2.6648	3.8315

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B116. Determination of Best Fit Distribution
Chi-square values of Relative Humidity Data for different probability distributions
April

							Scaling						Appendix B
							Rank	1	2	6	3	5	4
							Comparison	1.00	1.14	50.04	1.17	11.76	7.51
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	6.79	24.28	925.85	13.83	314.88	14.59	0.0052	0.0187	0.7121	0.0106	0.2422	0.0112	
2 Bhola	5.98	24.97	809.86	3.62	231.98	217.24	0.0046	0.0193	0.6260	0.0028	0.1793	0.1679	
3 Bogra	6.88	3.59	225.02	6.59	20.69	10.21	0.0252	0.0131	0.8243	0.0241	0.0758	0.0374	
4 Chandpur	1.51	16.34	638.24	1.17	169.50	1.67	0.0018	0.0197	0.7704	0.0014	0.2046	0.0020	
5 Chittagong	9.55	6.69	847.70	9.27	413.34	11.64	0.0074	0.0052	0.6530	0.0071	0.3184	0.0090	
6 Comilla	9.22	2.55	846.57	6.81	421.84	12.26	0.0071	0.0020	0.6516	0.0052	0.3247	0.0094	
7 Cox's Bazar	1.83	16.69	764.62	4.13	258.95	10.65	0.0017	0.0158	0.7235	0.0039	0.2450	0.0101	
8 Dhaka	2.34	6.34	446.70	2.78	113.24	6.98	0.0040	0.0110	0.7723	0.0048	0.1958	0.0121	
9 Dinajpur	25.01	6.69	145.00	29.25	24.65	22.05	0.0040	0.0110	0.7723	0.0048	0.1958	0.0121	
10 Faridpur	0.61	11.52	358.16	1.45	51.57	16.23	0.0990	0.0265	0.5739	0.1158	0.0976	0.0873	
11 Feni	3.42	9.45	641.87	4.06	209.73	18.72	0.0014	0.0262	0.8149	0.0033	0.1173	0.0369	
12 Hatiya	4.13	19.79	711.84	3.12	200.50	13490.86	0.0039	0.0106	0.7234	0.0046	0.2364	0.0211	
13 Ishurdi	23.63	6.00	223.93	18.75	27.42	30.53	0.0003	0.0014	0.0493	0.0002	0.0139	0.9349	
14 Jessore	7.38	3.93	316.26	11.93	50.65	14.98	0.0715	0.0182	0.6780	0.0568	0.0830	0.0924	
15 Khepupara	1.60	21.17	447.17	0.55	60.77	5.89	0.0182	0.0097	0.7806	0.0295	0.1250	0.0370	
16 Khulna	1.57	7.38	375.26	2.48	52.00	3.71	0.0030	0.0394	0.8325	0.0010	0.1131	0.0110	
17 Kutubdia	16.96	19.79	1162.56	16.68	550.48	58.63	0.0035	0.0167	0.8483	0.0056	0.1175	0.0084	
18 Madaripur	17.19	9.45	333.61	10.96	59.70	12.63	0.0093	0.0108	0.6370	0.0091	0.3016	0.0321	
19 M.Court	0.95	7.72	513.09	4.41	139.50	11.60	0.0014	0.0114	0.7576	0.0065	0.2060	0.0171	
20 Mongla	2.59	9.50	491.82	6.45	166.22	153.81	0.0388	0.0213	0.7522	0.0247	0.1346	0.0285	
21 Mymensingh	15.07	11.52	285.25	28.03	26.29	128.55	0.0031	0.0114	0.5923	0.0078	0.2002	0.1852	
22 Patuakhali	1.58	21.17	570.46	1.37	111.36	5.85	0.0305	0.0233	0.5766	0.0567	0.0531	0.2599	
23 Rajshahi	4.39	6.69	173.11	6.48	6.25	24.24	0.0022	0.0297	0.8014	0.0019	0.1565	0.0082	
24 Rangamati	1.41	6.69	391.49	8.82	81.13	4.46	0.0198	0.0302	0.7827	0.0293	0.0283	0.1096	
25 Rangpur	3.80	4.62	237.83	8.01	20.26	5.67	0.0029	0.0135	0.7925	0.0179	0.1642	0.0090	
26 Sandwip	4.25	18.76	719.25	4.30	201.41	118.52	0.0136	0.0165	0.8488	0.0286	0.0723	0.0202	
27 Satkhira	11.88	11.52	354.56	4.01	51.61	26.40	0.0040	0.0176	0.6744	0.0040	0.1889	0.1111	
28 Shitakunda	2.24	5.31	475.86	9.01	125.77	10.97	0.0258	0.0250	0.7708	0.0087	0.1122	0.0574	
29 Srimongol	7.44	34.28	387.17	7.66	31.60	6058.38	0.0036	0.0084	0.7564	0.0143	0.1999	0.0174	
30 Sylhet	8.79	6.00	557.47	8.52	182.73	9.61	0.0011	0.0053	0.0593	0.0012	0.0048	0.9283	
31 Tangail	6.45	6.64	330.14	10.29	70.95	95.75	0.0114	0.0078	0.7211	0.0110	0.2363	0.0124	
32 Teknaf	3.71	14.97	535.00	6.28	121.18	15.53	0.0114	0.0078	0.7211	0.0110	0.2363	0.0124	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.4407	0.5045	22.0507	0.5143	5.1807	3.3091	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B117. Determination of Best Fit Distribution
Chi-square values of Relative Humidity Data for different probability distributions
May

Station	Chi-square values						Scaling						Appendix B
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Rank 1	Rank 3	Rank 6	Rank 2	Rank 5	Rank 4	
	1.00	2.90	146.01	1.38	40.65	28.84	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	8.39	16.69	818.53	7.77	282.52	281.26	0.0059	0.0118	0.5784	0.0055	0.1996	0.1987	
2 Bhola	1.84	9.10	857.61	2.23	360.89	1.56	0.0015	0.0074	0.6954	0.0018	0.2926	0.0013	
3 Bogra	0.50	8.76	403.41	1.76	70.15	2.97	0.0010	0.0180	0.8274	0.0036	0.1439	0.0061	
4 Chandpur	4.40	3.93	874.02	6.54	490.69	4.80	0.0032	0.0028	0.6313	0.0047	0.3544	0.0035	
5 Chittagong	5.16	4.28	717.86	4.36	289.89	5.61	0.0050	0.0042	0.6989	0.0042	0.2822	0.0055	
6 Comilla	3.14	13.59	744.57	2.09	197.06	2.72	0.0033	0.0141	0.7730	0.0022	0.2046	0.0028	
7 Cox's Bazar	5.20	4.28	559.57	14.06	174.30	15.99	0.0067	0.0055	0.7235	0.0182	0.2254	0.0207	
8 Dhaka	10.21	21.17	623.61	4.75	147.33	28.01	0.0122	0.0254	0.7468	0.0057	0.1764	0.0335	
9 Dinajpur	2.01	12.90	295.15	1.48	23.61	26.77	0.0122	0.0254	0.7468	0.0057	0.1764	0.0335	
10 Faridpur	7.80	14.97	637.19	5.77	182.77	10.26	0.0055	0.0356	0.8155	0.0041	0.0652	0.0740	
11 Feni	2.87	5.31	871.65	2.20	363.33	3.47	0.0091	0.0174	0.7420	0.0067	0.2128	0.0119	
12 Hatiya	0.44	16.34	682.90	2.66	190.94	2.52	0.0023	0.0043	0.6980	0.0018	0.2909	0.0028	
13 Ishurdi	2.82	6.00	314.78	5.83	45.90	8.31	0.0005	0.0182	0.7623	0.0030	0.2132	0.0028	
14 Jessore	1.90	12.90	685.19	6.85	233.76	5.85	0.0073	0.0156	0.8205	0.0152	0.1196	0.0216	
15 Khepupara	3.47	28.07	744.56	2.31	180.61	85.32	0.0020	0.0136	0.7240	0.0072	0.2470	0.0062	
16 Khulna	0.35	8.76	636.21	2.93	207.79	3.13	0.0033	0.0269	0.7130	0.0022	0.1729	0.0817	
17 Kutubdia	4.02	14.97	768.16	7.84	262.63	3.40	0.0004	0.0102	0.7405	0.0034	0.2418	0.0036	
18 Madaripur	1.91	3.93	392.47	9.03	81.07	11.22	0.0038	0.0141	0.7240	0.0074	0.2475	0.0032	
19 M.Court	6.40	19.79	730.81	8.93	206.27	96715.16	0.0001	0.0002	0.0075	0.0001	0.0021	0.9900	
20 Mongla	6.43	3.50	628.76	3.66	302.65	10.24	0.0038	0.0079	0.7855	0.0181	0.1623	0.0225	
21 Mymensingh	0.59	13.59	475.77	4.12	89.88	67.44	0.0067	0.0037	0.6582	0.0038	0.3168	0.0107	
22 Patuakhali	16.29	25.31	730.34	8.30	175.09	2.76E+08	0.0009	0.0209	0.7304	0.0063	0.1380	0.1035	
23 Rajshahi	3.56	2.90	318.71	6.14	49.50	7.19	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
24 Rangamati	0.44	11.52	567.77	6.71	146.99	1.54	0.0092	0.0075	0.8214	0.0158	0.1276	0.0185	
25 Rangpur	5.78	19.10	543.95	4.99	105.52	334.59	0.0006	0.0157	0.7725	0.0091	0.2000	0.0021	
26 Sandwip	6.37	2.55	724.55	5.07	305.77	9.35	0.0057	0.0188	0.5365	0.0049	0.1041	0.3300	
27 Satkhira	10.70	19.79	459.15	20.24	72.86	2.75E+06	0.0060	0.0024	0.6877	0.0048	0.2902	0.0089	
28 Shitakunda	2.76	10.83	578.72	10.51	156.92	119.81	0.0000	0.0000	0.0002	0.0000	0.0000	0.9998	
29 Srimongol	11.92	31.52	686.81	11.77	140.23	36.61	0.0031	0.0123	0.6580	0.0120	0.1784	0.1362	
30 Sylhet	3.60	9.10	551.03	3.44	121.80	1.74	0.0130	0.0343	0.7475	0.0128	0.1526	0.0398	
31 Tangail	2.56	10.27	467.02	7.20	126.76	30.83	0.0052	0.0132	0.7978	0.0050	0.1763	0.0025	
32 Teknaf	0.85	14.28	349.69	0.45	35.23	2.42	0.0052	0.0132	0.7978	0.0050	0.1763	0.0025	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1449	0.4205	21.1621	0.2003	5.8915	4.1806	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B118. Determination of Best Fit Distribution
Chi-square values of Relative Humidity Data for different probability distributions
June

Station	Chi-square values						Scaling						Appendix B
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Rank 1	Rank 3	Rank 6	Rank 2	Rank 5	Rank 4	
	1.00	1.93	197.11	1.07	93.38	15.07	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	0.98	10.83	1061.10	0.62	467.58	0.20	0.0006	0.0070	0.6884	0.0004	0.3034	0.0001	
2 Bhola	1.42	12.90	1392.94	2.09	774.80	1.26	0.0006	0.0059	0.6374	0.0010	0.3545	0.0006	
3 Bogra	8.07	13.93	1032.62	3.50	482.48	303.61	0.0044	0.0076	0.5599	0.0019	0.2616	0.1646	
4 Chandpur	6.61	3.24	905.20	5.28	507.98	5.04	0.0046	0.0023	0.6315	0.0037	0.3544	0.0035	
5 Chittagong	3.45	15.66	802.56	2.57	278.98	1.94	0.0031	0.0142	0.7262	0.0023	0.2524	0.0018	
6 Comilla	1.92	7.03	1008.07	1.27	520.75	6.67	0.0012	0.0046	0.6522	0.0008	0.3369	0.0043	
7 Cox's Bazar	2.49	6.34	808.94	2.68	330.68	2.48	0.0022	0.0055	0.7012	0.0023	0.2866	0.0021	
8 Dhaka	5.01	2.55	1096.76	5.37	702.11	5.02	0.0028	0.0014	0.6037	0.0030	0.3865	0.0028	
9 Dinajpur	9.38	14.62	923.05	9.58	390.06	48.46	0.0028	0.0014	0.6037	0.0030	0.3865	0.0028	
10 Faridpur	4.69	3.59	1354.92	4.50	1100.46	4.20	0.0067	0.0105	0.6616	0.0069	0.2796	0.0347	
11 Feni	3.81	6.69	1135.19	1.80	702.46	3.18	0.0019	0.0015	0.5480	0.0018	0.4451	0.0017	
12 Hatiya	5.70	8.07	994.98	2.41	526.64	4.78	0.0021	0.0036	0.6126	0.0010	0.3791	0.0017	
13 Ishurdi	2.10	9.10	674.07	13.53	225.86	24.62	0.0037	0.0052	0.6450	0.0016	0.3414	0.0031	
14 Jessore	4.69	8.41	1002.17	4.31	503.03	11.41	0.0022	0.0096	0.7101	0.0143	0.2379	0.0259	
15 Khepupara	1.67	10.48	1028.10	2.49	493.77	4.14	0.0031	0.0055	0.6533	0.0028	0.3279	0.0074	
16 Khulna	3.93	3.93	956.87	3.18	464.23	2.47	0.0011	0.0068	0.6673	0.0016	0.3205	0.0027	
17 Kutubdia	11.97	4.62	1078.01	10.82	575.84	8.24	0.0027	0.0027	0.6670	0.0022	0.3236	0.0017	
18 Madaripur	1.75	13.59	654.61	6.48	173.13	9.20	0.0071	0.0027	0.6381	0.0064	0.3408	0.0049	
19 M.Court	1.07	8.41	1076.46	0.64	604.03	21.55	0.0006	0.0049	0.6287	0.0004	0.3528	0.0126	
20 Mongla	4.85	6.00	732.08	4.13	351.60	1.93	0.0020	0.0158	0.7623	0.0075	0.2016	0.0107	
21 Mymensingh	22.15	30.14	823.32	16.01	200.73	3.37E+09	0.0044	0.0055	0.6652	0.0037	0.3195	0.0018	
22 Patuakhali	5.20	11.86	994.69	2.50	398.56	4.89	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
23 Rajshahi	15.29	15.66	811.70	19.64	272.19	190.14	0.0037	0.0084	0.7016	0.0018	0.2811	0.0034	
24 Rangamati	3.77	8.76	981.06	2.49	479.87	5.45	0.0115	0.0118	0.6128	0.0148	0.2055	0.1435	
25 Rangpur	3.47	6.00	1303.73	4.00	951.82	2.46	0.0025	0.0059	0.6622	0.0017	0.3239	0.0037	
26 Sandwip	4.54	4.97	1150.59	2.08	709.83	2.82	0.0015	0.0026	0.5740	0.0018	0.4190	0.0011	
27 Satkhira	3.50	13.59	635.07	4.75	179.35	10.39	0.0024	0.0026	0.6137	0.0011	0.3786	0.0015	
28 Shitakunda	6.20	1.52	771.56	6.57	342.04	6.63	0.0041	0.0160	0.7501	0.0056	0.2118	0.0123	
29 Srimongol	9.62	21.86	931.09	7.85	324.93	121.94	0.0055	0.0013	0.6801	0.0058	0.3015	0.0058	
30 Sylhet	3.25	6.69	883.39	2.23	308.18	5.24	0.0068	0.0154	0.6570	0.0055	0.2293	0.0860	
31 Tangail	9.45	24.36	1594.44	10.31	1089.67	3185.15	0.0027	0.0055	0.7307	0.0018	0.2549	0.0043	
32 Teknaf	2.41	4.62	881.58	1.38	375.22	1.15	0.0027	0.0055	0.7307	0.0018	0.2549	0.0043	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1034	0.1993	20.3762	0.1103	9.6532	1.5576	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B119. Determination of Best Fit Distribution
Chi-square values of Relative Humidity Data for different probability distributions
July

							Scaling						Appendix B
							Rank	1	3	6	2	5	4
							Comparison	1.00	2.69	274.08	1.12	140.20	4.75
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	2.36	6.34	1009.01	7.02	522.80	6.58	0.0015	0.0041	0.6493	0.0045	0.3364	0.0042	
2 Bhola	0.87	10.14	1397.98	1.99	864.15	0.46	0.0004	0.0045	0.6143	0.0009	0.3797	0.0002	
3 Bogra	3.63	8.07	882.35	3.53	391.24	12.10	0.0028	0.0062	0.6782	0.0027	0.3007	0.0093	
4 Chandpur	1.50	5.31	932.59	2.42	494.61	15.22	0.0010	0.0037	0.6424	0.0017	0.3407	0.0105	
5 Chittagong	5.29	6.00	947.64	5.26	455.94	4.21	0.0037	0.0042	0.6653	0.0037	0.3201	0.0030	
6 Comilla	11.69	4.62	1194.08	12.48	749.64	8.52	0.0059	0.0023	0.6028	0.0063	0.3784	0.0043	
7 Cox's Bazar	2.13	5.31	1139.53	1.81	681.37	4.34	0.0012	0.0029	0.6212	0.0010	0.3714	0.0024	
8 Dhaka	4.67	4.97	798.73	5.53	348.08	6.07	0.0040	0.0043	0.6838	0.0047	0.2980	0.0052	
9 Dinajpur	2.51	5.66	913.55	6.27	470.60	18.22	0.0040	0.0043	0.6838	0.0047	0.2980	0.0052	
10 Faridpur	1.25	12.21	1432.07	1.67	948.03	6.67	0.0018	0.0040	0.6448	0.0044	0.3322	0.0129	
11 Feni	3.11	7.72	918.73	3.77	442.96	1.57	0.0005	0.0051	0.5962	0.0007	0.3947	0.0028	
12 Hatiya	0.71	7.38	1289.87	0.36	850.48	3.61	0.0023	0.0056	0.6668	0.0027	0.3215	0.0011	
13 Ishurdi	2.49	8.07	826.98	6.75	353.73	14.31	0.0003	0.0034	0.5993	0.0002	0.3951	0.0017	
14 Jessore	0.35	12.90	1504.77	0.90	1051.58	1.48	0.0021	0.0067	0.6821	0.0056	0.2918	0.0118	
15 Khepupara	4.81	9.10	1340.57	6.75	904.50	49.51	0.0001	0.0050	0.5851	0.0003	0.4089	0.0006	
16 Khulna	1.51	10.14	1321.68	0.50	822.94	0.76	0.0021	0.0039	0.5790	0.0029	0.3907	0.0214	
17 Kutubdia	2.17	12.90	1279.02	2.53	743.11	3.37	0.0007	0.0047	0.6126	0.0002	0.3814	0.0004	
18 Madaripur	8.35	6.00	950.24	7.46	477.18	5.93	0.0011	0.0063	0.6260	0.0012	0.3637	0.0016	
19 M.Court	2.36	10.83	1206.94	0.43	684.49	15.12	0.0012	0.0056	0.6286	0.0002	0.3565	0.0079	
20 Mongla	1.45	4.00	793.95	1.40	467.65	2.46	0.0057	0.0041	0.6530	0.0051	0.3279	0.0041	
21 Mymensingh	3.85	24.62	1006.85	3.86	354.44	10.64	0.0011	0.0031	0.6247	0.0011	0.3680	0.0019	
22 Patuakhali	2.02	26.00	1078.80	1.23	380.94	7.70	0.0027	0.0175	0.7170	0.0027	0.2524	0.0076	
23 Rajshahi	5.16	5.31	1193.36	7.31	783.39	14.60	0.0013	0.0174	0.7208	0.0008	0.2545	0.0051	
24 Rangamati	10.11	3.24	964.24	7.17	561.17	8.91	0.0026	0.0026	0.5940	0.0036	0.3899	0.0073	
25 Rangpur	3.02	9.45	882.11	2.96	381.40	7.91	0.0065	0.0021	0.6202	0.0046	0.3609	0.0057	
26 Sandwip	3.98	6.69	1075.33	2.37	616.43	4.24	0.0023	0.0073	0.6855	0.0023	0.2964	0.0061	
27 Satkhira	4.42	25.66	1309.97	5.49	609.85	360.01	0.0023	0.0039	0.6292	0.0014	0.3607	0.0025	
28 Shitakunda	7.63	1.86	730.78	7.01	309.87	5.87	0.0019	0.0111	0.5658	0.0024	0.2634	0.1555	
29 Srimongol	2.78	10.48	1067.64	2.52	539.32	2.86	0.0072	0.0018	0.6875	0.0066	0.2915	0.0055	
30 Sylhet	1.82	21.17	806.62	2.10	233.48	26.92	0.0017	0.0064	0.6568	0.0016	0.3318	0.0018	
31 Tangail	5.65	10.27	1051.20	5.45	672.23	13.15	0.0017	0.0194	0.7386	0.0019	0.2138	0.0247	
32 Teknaf	13.03	4.28	998.36	9.04	527.31	22.54	0.0017	0.0194	0.7386	0.0019	0.2138	0.0247	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0755	0.2029	20.6931	0.0849	10.5849	0.3587	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B120. Determination of Best Fit Distribution
Chi-square values of Relative Humidity Data for different probability distributions
August

Station	Scaling						Appendix B					
	2		3		6		1		5		4	
	Rank	Comparison	Rank	Comparison	Rank	Comparison	Rank	Comparison	Rank	Comparison	Rank	Comparison
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Barisal	2.22	7.38	1243.59	2.35	533.05	2.93	0.0012	0.0041	0.6942	0.0013	0.2975	0.0016
2 Bhola	3.76	7.72	1117.01	3.32	649.25	1.63	0.0021	0.0043	0.6266	0.0019	0.3642	0.0009
3 Bogra	2.24	10.48	1224.72	4.22	752.24	2.14	0.0011	0.0053	0.6136	0.0021	0.3769	0.0011
4 Chandpur	18.26	10.83	1306.36	17.70	702.38	14.34	0.0088	0.0052	0.6311	0.0086	0.3393	0.0069
5 Chittagong	1.14	6.69	640.02	1.38	194.41	4.05	0.0013	0.0079	0.7550	0.0016	0.2293	0.0048
6 Comilla	1.85	3.93	1081.53	1.51	661.94	2.56	0.0011	0.0022	0.6168	0.0009	0.3775	0.0015
7 Cox's Bazar	4.17	13.59	1409.31	1.29	896.92	2.31	0.0018	0.0058	0.6055	0.0006	0.3853	0.0010
8 Dhaka	10.69	5.31	854.35	6.63	403.82	35.73	0.0081	0.0040	0.6489	0.0050	0.3067	0.0271
9 Dinajpur	2.70	3.24	688.97	2.67	257.23	3.91	0.0081	0.0040	0.6489	0.0050	0.3067	0.0271
10 Faridpur	1.39	8.76	1077.36	0.61	615.49	2.46	0.0028	0.0034	0.7186	0.0028	0.2683	0.0041
11 Feni	9.54	1.86	812.13	7.19	320.07	10.74	0.0008	0.0051	0.6315	0.0004	0.3608	0.0014
12 Hatiya	12.00	16.00	1533.24	10.89	967.16	5.31	0.0082	0.0016	0.6992	0.0062	0.2756	0.0092
13 Ishurdi	6.77	6.69	1064.03	5.78	544.84	2.85	0.0047	0.0063	0.6025	0.0043	0.3801	0.0021
14 Jessore	2.47	4.97	1330.00	4.28	967.45	4.77	0.0041	0.0041	0.6524	0.0035	0.3341	0.0017
15 Khepupara	0.89	10.48	1377.15	0.47	931.37	0.97	0.0011	0.0021	0.5748	0.0019	0.4181	0.0021
16 Khuina	3.15	4.62	1226.82	3.22	794.30	2.36	0.0004	0.0045	0.5933	0.0002	0.4012	0.0004
17 Kutubdia	0.66	7.38	1390.87	0.66	1038.05	2.54	0.0015	0.0023	0.6030	0.0016	0.3904	0.0012
18 Madaripur	16.83	8.07	1083.91	14.81	614.83	16.90	0.0003	0.0030	0.5700	0.0003	0.4254	0.0010
19 M.Court	1.41	5.31	913.75	3.27	424.59	1.32	0.0010	0.0039	0.6770	0.0024	0.3146	0.0010
20 Mongla	3.13	9.50	1154.58	2.77	766.51	2.74	0.0096	0.0046	0.6175	0.0084	0.3503	0.0096
21 Mymensingh	5.80	16.00	699.19	2.45	187.99	25.97	0.0016	0.0049	0.5954	0.0014	0.3953	0.0014
22 Patuakhali	5.90	3.24	901.29	5.55	428.45	5.71	0.0062	0.0171	0.7459	0.0026	0.2005	0.0277
23 Rajshahi	2.05	6.00	1419.41	0.64	1027.87	1.32	0.0044	0.0024	0.6675	0.0041	0.3173	0.0042
24 Rangamati	13.38	4.97	1070.06	15.32	484.62	11.75	0.0008	0.0024	0.5776	0.0003	0.4183	0.0005
25 Rangpur	4.37	7.38	934.51	3.68	460.67	3.36	0.0084	0.0031	0.6687	0.0096	0.3029	0.0073
26 Sandwip	2.88	6.69	1031.86	0.91	531.46	4.94	0.0031	0.0052	0.6609	0.0026	0.3258	0.0024
27 Satkhira	3.53	10.83	1089.33	3.40	586.75	289.63	0.0018	0.0042	0.6536	0.0006	0.3366	0.0031
28 Shitakunda	0.60	7.72	564.58	4.04	139.83	1.42	0.0018	0.0055	0.5492	0.0017	0.2958	0.1460
29 Srimongol	16.79	21.17	1322.23	13.95	679.14	269.71	0.0008	0.0108	0.7861	0.0056	0.1947	0.0020
30 Sylhet	1.32	15.66	825.06	1.68	287.72	1.39	0.0072	0.0091	0.5692	0.0060	0.2924	0.1161
31 Tangail	9.82	2.55	1019.91	9.56	679.31	7.98	0.0012	0.0138	0.7283	0.0015	0.2540	0.0012
32 Teknaf	1.07	6.69	955.01	0.71	456.05	1.16	0.0012	0.0138	0.7283	0.0015	0.2540	0.0012
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1068	0.1763	20.7113	0.0964	10.4900	0.4192

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B121. Determination of Best Fit Distribution
Chi-square values of Relative Humidity Data for different probability distributions
September

Station	Chi-square values						Scaling						Appendix B
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Rank	1	3	6	2	5	4
	Comparison	1.00	2.69	212.37	1.26	98.21	36.94	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Barisal	6.09	12.21	974.47	8.40	423.99	134.33	0.0039	0.0078	0.6249	0.0054	0.2719	0.0861	
2 Bhola	3.36	23.24	1244.56	3.18	548.37	18.34	0.0018	0.0126	0.6760	0.0017	0.2979	0.0100	
3 Bogra	5.67	9.45	957.60	8.53	417.99	11.89	0.0040	0.0067	0.6786	0.0060	0.2962	0.0084	
4 Chandpur	0.56	10.83	874.31	2.46	375.61	2.07	0.0004	0.0086	0.6907	0.0019	0.2967	0.0016	
5 Chittagong	5.75	21.86	922.72	5.86	322.96	36109.69	0.0002	0.0006	0.0247	0.0002	0.0086	0.9658	
6 Comilla	1.00	11.52	1235.55	0.90	702.24	1.35	0.0005	0.0059	0.6328	0.0005	0.3597	0.0007	
7 Cox's Bazar	0.94	14.28	1488.20	1.52	1017.32	22.03	0.0004	0.0056	0.5849	0.0006	0.3998	0.0087	
8 Dhaka	2.67	11.86	882.85	3.98	373.09	33.80	0.0020	0.0091	0.6748	0.0030	0.2852	0.0258	
9 Dinajpur	3.58	8.07	853.78	3.71	368.83	11.70	0.0020	0.0091	0.6748	0.0030	0.2852	0.0258	
10 Faridpur	2.96	22.55	954.74	6.83	333.55	1076.26	0.0029	0.0065	0.6832	0.0030	0.2951	0.0094	
11 Feni	7.93	7.38	1132.17	7.21	679.51	26.17	0.0012	0.0094	0.3983	0.0028	0.1392	0.4490	
12 Hatiya	1.20	14.28	1079.95	0.89	513.03	0.23	0.0043	0.0040	0.6086	0.0039	0.3653	0.0141	
13 Ishurdi	9.42	9.10	841.14	11.89	337.37	18.15	0.0007	0.0089	0.6710	0.0006	0.3187	0.0001	
14 Jessore	11.82	17.72	1298.07	14.71	693.12	171.36	0.0077	0.0074	0.6855	0.0097	0.2749	0.0148	
15 Khepupara	4.99	6.69	1069.86	4.86	602.06	13.25	0.0054	0.0080	0.5882	0.0067	0.3141	0.0776	
16 Khulna	3.66	23.24	1178.64	4.84	498.77	319.86	0.0029	0.0039	0.6287	0.0029	0.3538	0.0078	
17 Kutubdia	3.11	10.14	1470.84	5.82	1076.26	13.81	0.0018	0.0115	0.5809	0.0024	0.2458	0.1576	
18 Madaripur	15.76	16.00	823.06	15.07	284.45	485.33	0.0012	0.0039	0.5701	0.0023	0.4172	0.0054	
19 M.Court	4.66	14.97	1272.41	4.08	703.34	8.50	0.0023	0.0075	0.6337	0.0020	0.3503	0.0042	
20 Mongla	3.36	2.50	768.02	2.08	425.59	5.13	0.0096	0.0098	0.5020	0.0092	0.1735	0.2960	
21 Mymensingh	2.07	13.59	666.10	2.42	185.29	19.32	0.0028	0.0021	0.6365	0.0017	0.3527	0.0042	
22 Patuakhali	3.15	19.45	793.08	5.60	227.28	222.28	0.0023	0.0153	0.7495	0.0027	0.2085	0.0217	
23 Rajshahi	11.93	18.07	879.34	9.40	302.55	1946.50	0.0025	0.0153	0.6241	0.0044	0.1788	0.1749	
24 Rangamati	7.21	9.45	1214.80	6.50	752.88	11.96	0.0038	0.0057	0.2776	0.0030	0.0955	0.6145	
25 Rangpur	2.60	12.21	1020.89	1.94	482.11	65.87	0.0036	0.0047	0.6065	0.0032	0.3759	0.0060	
26 Sandwip	6.02	9.79	1355.19	5.42	912.95	9.99	0.0016	0.0077	0.6438	0.0012	0.3041	0.0415	
27 Satkhira	11.95	21.17	1109.54	15.04	457.06	53.93	0.0026	0.0043	0.5894	0.0024	0.3970	0.0043	
28 Shitakunda	4.34	2.55	557.24	9.53	181.09	11.47	0.0072	0.0127	0.6649	0.0090	0.2739	0.0323	
29 Srimongol	2.75	15.66	1169.76	3.04	597.91	574.33	0.0057	0.0033	0.7273	0.0124	0.2363	0.0150	
30 Sylhet	1.11	9.79	716.06	2.70	242.22	13.54	0.0012	0.0066	0.4949	0.0013	0.2530	0.2430	
31 Tangail	9.14	0.73	1023.92	11.36	721.79	5.60	0.0011	0.0099	0.7266	0.0027	0.2458	0.0137	
32 Teknaf	53.10	19.79	1310.25	45.75	632.02	57.56	0.0011	0.0099	0.7266	0.0027	0.2458	0.0137	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0908	0.2442	19.2801	0.1146	8.9164	3.3540	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B122. Determination of Best Fit Distribution
Chi-square values of Relative Humidity Data for different probability distributions
October

Station	Chi-square values						Scaling						Appendix B
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Rank	1	3	6	2	4	5
	Comparison I	1.00	2.17	111.58	1.24	34.04	37.18	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Barisal	12.20	21.17	954.71	9.29	324.75	39.65	0.0090	0.0155	0.7011	0.0068	0.2385	0.0291	
2 Bhola	2.40	12.90	658.34	3.23	182.24	74.26	0.0026	0.0138	0.7053	0.0035	0.1953	0.0796	
3 Bogra	2.20	19.79	647.35	1.02	152.96	10.27	0.0026	0.0237	0.7766	0.0012	0.1835	0.0123	
4 Chandpur	5.69	5.31	785.99	6.65	371.68	4.68	0.0048	0.0045	0.6661	0.0056	0.3150	0.0040	
5 Chittagong	4.09	12.55	618.53	5.01	170.64	35.39	0.0048	0.0148	0.7309	0.0059	0.2017	0.0418	
6 Comilla	4.42	2.55	750.68	3.53	317.34	4.26	0.0041	0.0024	0.6933	0.0033	0.2931	0.0039	
7 Cox's Bazar	0.39	8.76	657.57	0.53	220.77	5.85	0.0004	0.0098	0.7356	0.0006	0.2470	0.0065	
8 Dhaka	2.24	19.79	616.46	3.38	144.42	19.26	0.0028	0.0246	0.7653	0.0042	0.1793	0.0239	
9 Dinajpur	7.16	6.69	452.57	18.70	97.67	33.35	0.0028	0.0246	0.7653	0.0042	0.1793	0.0239	
10 Faridpur	6.85	11.17	703.43	8.59	237.38	60.55	0.0116	0.0109	0.7345	0.0303	0.1585	0.0541	
11 Feni	6.00	8.07	922.77	3.67	458.17	14.65	0.0067	0.0109	0.6843	0.0084	0.2309	0.0589	
12 Hatiya	3.07	7.38	553.09	5.41	149.77	60.59	0.0042	0.0057	0.6529	0.0026	0.3242	0.0104	
13 Ishurdi	8.25	14.97	663.16	13.88	180.40	24.86	0.0039	0.0095	0.7097	0.0069	0.1922	0.0778	
14 Jessore	3.79	20.48	519.66	3.99	85.60	372.85	0.0091	0.0165	0.7324	0.0153	0.1992	0.0275	
15 Khepupara	2.09	17.72	561.37	4.39	109.78	333.88	0.0038	0.0204	0.5164	0.0040	0.0851	0.3705	
16 Khulna	1.68	9.10	582.08	3.06	161.29	44.08	0.0020	0.0172	0.5454	0.0043	0.1067	0.3244	
17 Kutubdia	2.97	15.66	1051.71	2.27	389.47	0.95	0.0021	0.0114	0.7264	0.0038	0.2013	0.0550	
18 Madaripur	9.14	2.90	388.76	13.89	79.75	7.03	0.0020	0.0107	0.7189	0.0016	0.2662	0.0006	
19 M.Court	4.22	13.59	642.81	4.79	176.78	57.05	0.0047	0.0151	0.7148	0.0053	0.1966	0.0634	
20 Mongla	1.52	8.00	635.77	1.07	278.45	3.58	0.0182	0.0058	0.7753	0.0277	0.1590	0.0140	
21 Mymensingh	8.53	23.93	423.63	17.05	42.72	85949.18	0.0016	0.0086	0.6848	0.0011	0.2999	0.0039	
22 Patuakhali	15.33	26.34	604.82	21.26	103.84	8822.50	0.0001	0.0003	0.0049	0.0002	0.0005	0.9940	
23 Rajshahi	9.15	18.41	495.78	17.22	80.01	1935.05	0.0016	0.0027	0.0630	0.0022	0.0108	0.9196	
24 Rangamati	8.76	17.72	719.29	11.70	203.15	3268848.34	0.0036	0.0072	0.1940	0.0067	0.0313	0.7572	
25 Rangpur	8.79	7.38	981.06	6.36	529.82	16.79	0.0000	0.0000	0.0002	0.0000	0.0001	0.9997	
26 Sandwip	7.80	26.69	673.97	7.44	136.62	88379.47	0.0057	0.0048	0.6329	0.0041	0.3418	0.0108	
27 Satkhira	7.32	15.66	410.59	6.76	55.06	33.76	0.0001	0.0003	0.0076	0.0001	0.0015	0.9904	
28 Shitakunda	16.86	10.48	521.77	13.96	121.75	33.05	0.0138	0.0296	0.7759	0.0128	0.1041	0.0638	
29 Srimongol	13.32	38.41	1082.88	16.47	319.44	548.31	0.0235	0.0146	0.7268	0.0194	0.1696	0.0460	
30 Sylhet	8.12	10.48	942.29	7.48	370.07	11.46	0.0066	0.0190	0.5364	0.0082	0.1582	0.2716	
31 Tangail	1.31	8.45	772.47	2.74	392.51	15.29	0.0060	0.0078	0.6980	0.0055	0.2741	0.0085	
32 Teknaf	8.72	12.90	485.31	9.66	93.89	44.61	0.0060	0.0078	0.6980	0.0055	0.2741	0.0085	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1709	0.3703	19.0731	0.2114	5.8185	6.3557	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B123. Determination of Best Fit Distribution
Chi-square values of Relative Humidity Data for different probability distributions
November

Station	Chi-square values						Scaling						Appendix B
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Rank	1	3	6	2	5	4
	Comparison	1.00	1.74	69.15	1.10	16.19	15.42	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Barisal	10.27	14.28	665.57	15.76	177.63	32.34		0.0112	0.0156	0.7267	0.0172	0.1940	0.0353
2 Bhola	9.12	10.83	597.79	11.96	160.57	129.07		0.0099	0.0118	0.6502	0.0130	0.1747	0.1404
3 Bogra	2.93	9.79	784.68	2.52	320.04	4.76		0.0026	0.0087	0.6977	0.0022	0.2846	0.0042
4 Chandpur	3.99	16.00	1021.62	3.22	489.94	4.24		0.0026	0.0104	0.6638	0.0021	0.3183	0.0028
5 Chittagong	1.76	6.00	479.85	6.50	109.09	3.13		0.0029	0.0099	0.7914	0.0107	0.1799	0.0052
6 Comilla	5.78	2.55	531.35	5.50	163.95	15.01		0.0080	0.0035	0.7338	0.0076	0.2264	0.0207
7 Cox's Bazar	3.91	8.76	514.65	9.17	112.55	1.24		0.0060	0.0135	0.7914	0.0141	0.1731	0.0019
8 Dhaka	4.32	1.52	387.05	8.17	93.21	7.93		0.0086	0.0030	0.7707	0.0163	0.1856	0.0158
9 Dinajpur	11.82	8.76	358.28	10.87	52.61	91.06		0.0086	0.0030	0.7707	0.0163	0.1856	0.0158
10 Faridpur	4.96	7.72	603.64	2.60	182.55	18.79		0.0222	0.0164	0.6717	0.0204	0.0986	0.1707
11 Feni	9.32	32.90	712.71	11.03	146.22	6229.51		0.0060	0.0094	0.7359	0.0032	0.2226	0.0229
12 Hatiya	2.78	9.45	414.71	7.84	73.27	1.71		0.0013	0.0046	0.0998	0.0015	0.0205	0.8723
13 Ishurdi	6.97	16.69	563.25	9.01	129.16	20.60		0.0055	0.0185	0.8135	0.0154	0.1437	0.0034
14 Jessore	7.04	16.69	451.68	7.06	70.51	385.72		0.0093	0.0224	0.7554	0.0121	0.1732	0.0276
15 Khepupara	3.55	21.17	353.31	5.45	28.34	29.96		0.0075	0.0178	0.4812	0.0075	0.0751	0.4109
16 Khulna	4.64	15.66	650.57	3.62	172.93	19.91		0.0080	0.0479	0.7997	0.0123	0.0641	0.0678
17 Kutubdia	0.63	15.66	642.98	3.29	180.88	3.26		0.0053	0.0180	0.7501	0.0042	0.1994	0.0230
18 Madaripur	9.64	6.69	291.37	2.81	39.23	7.75		0.0007	0.0185	0.7594	0.0039	0.2136	0.0039
19 M.Court	24.41	38.07	777.12	20.70	160.63	170.99		0.0205	0.0319	0.6520	0.0174	0.1348	0.1435
20 Mongla	11.06	5.50	868.94	10.67	430.95	7.47		0.0270	0.0187	0.8150	0.0079	0.1097	0.0217
21 Mymensingh	14.80	15.66	304.00	15.69	25.01	119.87		0.0083	0.0041	0.6511	0.0080	0.3229	0.0056
22 Patuakhali	11.71	17.72	483.65	15.99	78.12	913.92		0.0299	0.0316	0.6141	0.0317	0.0505	0.2421
23 Rajshahi	12.71	14.62	543.21	8.15	121.15	77.98		0.0077	0.0117	0.3180	0.0105	0.0514	0.6008
24 Rangamati	0.94	11.52	605.11	3.09	167.41	12.68		0.0163	0.0188	0.6984	0.0105	0.1558	0.1003
25 Rangpur	1.20	17.72	599.29	2.68	139.93	18.03		0.0012	0.0144	0.7557	0.0039	0.2091	0.0158
26 Sandwip	9.11	29.45	614.00	7.52	105.64	63369.32		0.0015	0.0228	0.7695	0.0034	0.1797	0.0232
27 Satkhira	15.41	11.86	313.22	14.00	34.15	39.47		0.0001	0.0005	0.0096	0.0001	0.0016	0.9881
28 Shitakunda	6.39	12.55	366.04	4.94	46.98	24.03		0.0360	0.0277	0.7316	0.0327	0.0798	0.0922
29 Srirongol	9.16	32.90	833.66	12.13	203.29	1407.94		0.0139	0.0272	0.7941	0.0107	0.1019	0.0521
30 Sylhet	5.56	22.90	637.46	6.35	140.21	9.93		0.0037	0.0132	0.3336	0.0049	0.0813	0.5634
31 Tangail	3.03	3.91	694.44	3.92	366.77	3.56		0.0068	0.0278	0.7751	0.0077	0.1705	0.0121
32 Teknaf	1.58	6.69	264.95	4.02	22.97	18.88		0.0068	0.0278	0.7751	0.0077	0.1705	0.0121
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99		0.3060	0.5312	21.1560	0.3370	4.9524	4.7174

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B124. Determination of Best Fit Distribution

Chi-square values of Relative Humidity Data for different probability distributions

December	Station	Scaling					Rank	Appendix B						
		Normal	Uniform	Exponential	Log-Normal	Poisson		EV-I	1	3	6	2	4	5
									Comparison	1.00	2.62	85.04	1.18	14.55
							Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I		
1	Barisal	1.51	11.52	413.23	9.18	63.72	88.17	0.0026	0.0196	0.7036	0.0156	0.1085	0.1501	
2	Bhola	7.48	18.41	545.66	9.57	104.84	311.93	0.0075	0.0185	0.5468	0.0096	0.1051	0.3126	
3	Bogra	1.27	16.34	481.28	7.51	92.46	1.17	0.0021	0.0272	0.8021	0.0125	0.1541	0.0019	
4	Chandpur	3.36	21.86	636.24	5.28	149.13	1235.58	0.0016	0.0107	0.3101	0.0026	0.0727	0.6023	
5	Chittagong	8.81	0.83	551.49	9.99	209.32	6.79	0.0112	0.0011	0.7005	0.0127	0.2659	0.0086	
6	Comilla	0.95	11.52	435.92	2.02	80.58	92.77	0.0015	0.0185	0.6989	0.0032	0.1292	0.1487	
7	Cox's Bazar	6.23	19.45	566.49	1.00	132.72	9141.80	0.0006	0.0020	0.0574	0.0001	0.0134	0.9264	
8	Dhaka	1.11	10.48	439.29	1.33	95.67	4.98	0.0020	0.0190	0.7946	0.0024	0.1731	0.0090	
9	Dinajpur	5.62	1.52	274.52	6.53	30.35	9.15	0.0020	0.0190	0.7946	0.0024	0.1731	0.0090	
10	Faridpur	3.58	12.21	502.59	4.28	114.83	38.52	0.0172	0.0046	0.8377	0.0199	0.0926	0.0279	
11	Feni	3.50	17.03	441.36	4.03	69.29	75.34	0.0053	0.0181	0.7435	0.0063	0.1699	0.0570	
12	Hatiya	2.00	11.52	391.40	2.14	59.10	15.89	0.0057	0.0279	0.7229	0.0066	0.1135	0.1234	
13	Ishurdi	4.43	11.86	386.22	3.38	57.52	12.39	0.0041	0.0239	0.8120	0.0044	0.1226	0.0330	
14	Jessore	8.73	11.86	396.76	5.96	59.45	44.46	0.0093	0.0249	0.8117	0.0071	0.1209	0.0260	
15	Khepupara	15.58	38.07	470.44	10.98	46.80	19.53	0.0166	0.0225	0.7526	0.0113	0.1128	0.0843	
16	Khulna	2.19	16.69	504.55	6.37	96.19	960.97	0.0259	0.0633	0.7823	0.0183	0.0778	0.0325	
17	Kutubdia	0.33	13.59	506.52	0.86	115.60	3.57	0.0014	0.0105	0.3179	0.0040	0.0606	0.6055	
18	Madaripur	14.96	5.31	255.00	10.08	30.53	15.29	0.0005	0.0212	0.7909	0.0013	0.1805	0.0056	
19	M.Court	14.52	33.59	587.38	20.22	89.08	110.82	0.0170	0.0393	0.6865	0.0236	0.1041	0.1295	
20	Mongla	1.26	8.00	339.25	2.20	75.52	7.94	0.0452	0.0160	0.7700	0.0304	0.0922	0.0462	
21	Mymensingh	3.94	8.07	256.96	0.43	18.09	17.96	0.0029	0.0184	0.7814	0.0051	0.1739	0.0183	
22	Patuakhali	6.21	13.59	313.89	5.46	26.69	40.54	0.0129	0.0264	0.8412	0.0014	0.0592	0.0588	
23	Rajshahi	0.55	8.76	396.32	0.86	70.64	4.85	0.0153	0.0334	0.7724	0.0134	0.0657	0.0998	
24	Rangamati	6.99	10.48	499.09	22.86	111.50	101.77	0.0011	0.0182	0.8223	0.0018	0.1466	0.0101	
25	Rangpur	0.80	7.03	449.96	2.92	98.09	10.67	0.0093	0.0139	0.6631	0.0304	0.1481	0.1352	
26	Sandwip	1.05	13.93	541.68	1.01	122.90	24.04	0.0014	0.0124	0.7901	0.0051	0.1722	0.0187	
27	Satkhira	8.65	12.55	263.77	8.07	19.71	14.90	0.0015	0.0198	0.7688	0.0014	0.1744	0.0341	
28	Shitakunda	1.08	12.90	232.27	7.15	8.04	54.47	0.0264	0.0383	0.8050	0.0246	0.0602	0.0455	
29	Srimongol	7.55	16.34	469.77	1.96	76.61	875.81	0.0034	0.0408	0.7353	0.0226	0.0254	0.1724	
30	Sylhet	1.12	12.90	427.16	2.58	80.13	0.94	0.0052	0.0113	0.3244	0.0014	0.0529	0.6048	
31	Tangail	6.43	3.91	612.82	5.71	286.47	2.60	0.0021	0.0246	0.8139	0.0049	0.1527	0.0018	
32	Teknaf	3.44	9.45	296.32	3.33	32.35	10.14	0.0021	0.0246	0.8139	0.0049	0.1527	0.0018	
Critical Chi Square Value (95% Confidence Level)		5.99	5.99	7.81	5.99	7.81	5.99	0.2630	0.6897	22.3682	0.3116	3.8265	4.5409	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B125. Determination of Best Fit Distribution

Chi-square values of Relative Humidity Data for different probability distributions

Yearly Average

Station	Scaling						Appendix B					
	2		1		6		3		5		4	
	1.13	1.00	77.92	1.46	40.48	6.01	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Barisal	19.12	17.03	1556.38	18.35	1031.00	55.06	0.0071	0.0063	0.5771	0.0068	0.3823	0.0204
2 Bhola	1.12	8.07	933.86	0.89	469.80	11.67	0.0008	0.0057	0.6551	0.0006	0.3296	0.0082
3 Bogra	2.70	6.34	894.18	1.76	440.26	3.63	0.0020	0.0047	0.6629	0.0013	0.3264	0.0027
4 Chandpur	3.85	18.76	1293.72	3.82	728.63	25.21	0.0019	0.0090	0.6238	0.0018	0.3513	0.0122
5 Chittagong	11.01	7.03	1064.53	10.28	683.79	19.10	0.0061	0.0039	0.5928	0.0057	0.3808	0.0106
6 Comilla	6.24	7.38	1216.16	4.66	801.23	5.12	0.0031	0.0036	0.5959	0.0023	0.3926	0.0025
7 Cox's Bazar	6.30	2.21	1313.75	10.20	1106.01	13.86	0.0026	0.0009	0.5357	0.0042	0.4510	0.0057
8 Dhaka	3.44	4.62	1095.22	3.06	797.28	2.41	0.0018	0.0024	0.5746	0.0016	0.4183	0.0013
9 Dinajpur	13.52	8.07	442.11	33.34	96.06	19.22	0.0018	0.0024	0.5746	0.0016	0.4183	0.0013
10 Faridpur	7.27	8.41	1297.87	5.47	914.39	16.09	0.0221	0.0132	0.7220	0.0544	0.1569	0.0314
11 Feni	12.46	13.24	1284.51	11.98	809.61	36.13	0.0032	0.0037	0.5770	0.0024	0.4065	0.0072
12 Hatiya	13.42	0.83	1020.86	17.61	605.62	10.47	0.0057	0.0061	0.5925	0.0055	0.3734	0.0167
13 Ishurdi	23.50	6.69	751.71	13.68	293.87	26.36	0.0080	0.0005	0.6117	0.0106	0.3629	0.0063
14 Jessore	21.74	8.76	952.20	11.18	511.25	23.12	0.0211	0.0060	0.6737	0.0123	0.2634	0.0236
15 Khepupara	8.81	38.41	899.31	6.40	218.52	15.85	0.0142	0.0057	0.6231	0.0073	0.3345	0.0151
16 Khuina	2.68	19.45	1478.42	2.49	940.51	17.50	0.0074	0.0324	0.7574	0.0054	0.1840	0.0134
17 Kutubdia	23.20	18.41	1906.33	18.68	1351.48	21.14	0.0011	0.0079	0.6007	0.0010	0.3822	0.0071
18 Madaripur	48.02	10.14	656.37	62.21	199.99	37.84	0.0069	0.0055	0.5709	0.0056	0.4047	0.0063
19 M.Court	27.21	33.59	1392.78	22.86	621.12	837.54	0.0093	0.0114	0.4745	0.0078	0.2116	0.2854
20 Mongla	1.65	10.50	1099.93	1.16	825.53	9.25	0.0473	0.0100	0.6469	0.0613	0.1971	0.0373
21 Mymensingh	10.36	10.83	439.76	23.97	79.44	43.99	0.0008	0.0054	0.5646	0.0006	0.4238	0.0047
22 Patuakhali	16.14	24.62	826.05	4.96	231.81	379.18	0.0170	0.0178	0.7229	0.0394	0.1306	0.0723
23 Rajshahi	16.64	4.62	890.79	20.56	464.44	13.98	0.0109	0.0166	0.5571	0.0033	0.1563	0.2557
24 Rangamati	21.12	7.72	1185.86	21.42	665.59	22.67	0.0118	0.0033	0.6313	0.0146	0.3291	0.0099
25 Rangpur	7.70	16.00	1056.54	8.51	497.65	20.28	0.0110	0.0040	0.6162	0.0111	0.3459	0.0118
26 Sandwip	13.32	14.97	1389.78	14.29	881.19	840.60	0.0048	0.0100	0.6576	0.0053	0.3097	0.0126
27 Satkhira	13.41	14.62	535.59	21.26	117.70	35.70	0.0042	0.0047	0.4406	0.0045	0.2794	0.2665
28 Shitakunda	6.61	9.45	550.85	31.18	152.21	8.44	0.0182	0.0198	0.7255	0.0288	0.1594	0.0484
29 Srimongol	16.41	23.24	912.73	23.11	315.04	519.53	0.0087	0.0125	0.7260	0.0411	0.2006	0.0111
30 Sylhet	13.44	1.86	1232.16	4.87	998.85	10.23	0.0091	0.0128	0.5043	0.0128	0.1740	0.2870
31 Tangail	2.11	12.09	1305.09	3.63	1054.39	20.15	0.0059	0.0008	0.5449	0.0022	0.4417	0.0045
32 Teknaf	7.20	19.79	618.45	13.20	147.81	17.01	0.0059	0.0008	0.5449	0.0022	0.4417	0.0045
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.2819	0.2500	19.4789	0.3654	10.1201	1.5036

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B126. Determination of Best Fit Distribution
Chi-square values of Relative Humidity Data for different probability distributions
Yearly Maximum Monthly

Station	Scaling						Appendix B					
	2		3		6		1		5		4	
	Rank	Comparison	Rank	Comparison	Rank	Comparison	Rank	Comparison	Rank	Comparison	Rank	Comparison
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Barisal	5.49	16.00	1810.96	2.04	1357.01	8.02	0.0017	0.0050	0.5660	0.0006	0.4241	0.0025
2 Bhola	4.22	5.31	1457.45	2.78	990.13	3.34	0.0017	0.0022	0.5917	0.0011	0.4020	0.0014
3 Bogra	2.85	5.31	1114.54	2.69	688.57	3.29	0.0016	0.0029	0.6133	0.0015	0.3789	0.0018
4 Chandpur	6.81	3.24	1144.22	6.76	774.92	10.94	0.0035	0.0017	0.5877	0.0035	0.3980	0.0056
5 Chittagong	11.07	8.76	995.07	4.90	493.82	12.95	0.0072	0.0057	0.6518	0.0032	0.3235	0.0085
6 Comilla	6.87	6.69	1592.70	6.80	1244.75	8.37	0.0024	0.0023	0.5557	0.0024	0.4343	0.0029
7 Cox's Bazar	4.16	7.72	1445.14	4.83	1084.63	1.01	0.0016	0.0030	0.5673	0.0019	0.4258	0.0004
8 Dhaka	4.91	8.76	1134.80	4.89	639.90	9.66	0.0027	0.0049	0.6294	0.0027	0.3549	0.0054
9 Dinajpur	3.56	8.76	1189.74	2.35	741.57	6.28	0.0027	0.0049	0.6294	0.0027	0.3549	0.0054
10 Faridpur	0.89	7.38	1921.31	0.74	1570.96	2.46	0.0018	0.0045	0.6094	0.0012	0.3799	0.0032
11 Feni	1.96	7.38	1128.70	3.07	637.64	3.82	0.0003	0.0021	0.5484	0.0002	0.4484	0.0007
12 Hatiya	3.27	3.59	1479.43	3.36	1143.57	1.96	0.0011	0.0041	0.6332	0.0017	0.3577	0.0021
13 Ishurdi	18.70	8.07	1177.95	18.80	656.78	23.59	0.0012	0.0014	0.5614	0.0013	0.4340	0.0007
14 Jessore	4.87	23.93	2839.02	3.17	2816.64	7.93	0.0098	0.0042	0.6187	0.0099	0.3450	0.0124
15 Khepupara	4.13	12.21	1872.46	2.59	1335.04	5.99	0.0009	0.0042	0.4985	0.0006	0.4945	0.0014
16 Khulna	2.15	4.97	1584.29	2.09	1117.19	2.08	0.0013	0.0038	0.5793	0.0008	0.4130	0.0019
17 Kutubdia	4.40	8.76	1523.50	2.14	1157.66	1.70	0.0008	0.0018	0.5840	0.0008	0.4118	0.0008
18 Madaripur	1.75	6.34	991.78	1.42	510.50	3.81	0.0016	0.0032	0.5646	0.0008	0.4291	0.0006
19 M.Court	3.53	21.86	1532.56	3.36	876.09	146.92	0.0014	0.0085	0.5930	0.0013	0.3390	0.0568
20 Mongla	5.06	4.00	1244.79	3.66	1137.67	3.31	0.0012	0.0042	0.6544	0.0009	0.3368	0.0025
21 Mymensingh	2.18	11.52	760.32	2.60	262.67	114.96	0.0021	0.0017	0.5190	0.0015	0.4743	0.0014
22 Patuakhali	4.40	9.10	1220.63	2.71	730.29	2.86	0.0019	0.0100	0.6587	0.0023	0.2276	0.0996
23 Rajshahi	6.62	15.66	1870.10	8.94	1523.44	53.46	0.0022	0.0046	0.6196	0.0014	0.3707	0.0015
24 Rangamati	5.59	5.31	1214.29	7.81	842.48	9.41	0.0019	0.0045	0.5377	0.0026	0.4380	0.0154
25 Rangpur	5.95	6.34	1237.81	3.55	785.86	15.47	0.0027	0.0025	0.5824	0.0037	0.4041	0.0045
26 Sandwip	3.03	9.10	1567.89	1.28	1155.16	0.25	0.0029	0.0031	0.6023	0.0017	0.3824	0.0075
27 Satkhira	4.28	7.38	1484.73	1.21	1018.56	10.08	0.0011	0.0033	0.5729	0.0005	0.4221	0.0001
28 Shitakunda	7.72	2.55	737.50	6.68	317.97	6.90	0.0017	0.0029	0.5877	0.0005	0.4032	0.0040
29 Srimongol	6.97	13.59	1471.11	9.19	949.56	17.79	0.0072	0.0024	0.6833	0.0062	0.2946	0.0064
30 Sylhet	5.13	16.34	1195.10	3.03	601.68	2.56	0.0028	0.0055	0.5960	0.0037	0.3847	0.0072
31 Tangail	11.51	7.55	2464.28	3.75	3002.41	6.34	0.0028	0.0090	0.6553	0.0017	0.3299	0.0014
32 Teknaf	16.20	1.86	1145.26	19.49	661.50	16.16	0.0028	0.0090	0.6553	0.0017	0.3299	0.0014
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0787	0.1330	19.1075	0.0664	12.3470	0.2673

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B127. Determination of Best Fit Distribution
Chi-square values of Relative Humidity Data for different probability distributions
Yearly Minimum Monthly

Station	Scaling						Appendix B					
	Rank 1	3	6	2	4	5	Rank 1	3	6	2	4	5
Comparison	1.00	2.11	65.40	1.16	9.76	11.56	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1 Barisal	3.01	18.76	571.67	5.27	132.53	75.69	0.0037	0.0232	0.7084	0.0065	0.1642	0.0938
2 Bhola	1.55	22.90	548.98	0.42	107.75	27.38	0.0022	0.0323	0.7743	0.0006	0.1520	0.0386
3 Bogra	2.83	8.76	243.29	2.79	19.77	14.80	0.0097	0.0300	0.8325	0.0095	0.0677	0.0506
4 Chandpur	1.09	20.48	559.75	1.09	129.25	1.69	0.0015	0.0287	0.7847	0.0015	0.1812	0.0024
5 Chittagong	2.63	14.28	453.94	4.04	97.74	0.66	0.0046	0.0249	0.7918	0.0070	0.1705	0.0011
6 Comilla	1.49	4.28	431.43	5.76	100.63	3.90	0.0027	0.0078	0.7880	0.0105	0.1838	0.0071
7 Cox's Bazar	1.65	21.86	559.78	0.51	127.40	5.21	0.0023	0.0305	0.7814	0.0007	0.1778	0.0073
8 Dhaka	3.69	5.31	315.88	2.83	56.15	6.78	0.0094	0.0136	0.8086	0.0073	0.1437	0.0174
9 Dinajpur	3.44	5.31	115.39	4.64	3.95	10.70	0.0094	0.0136	0.8086	0.0073	0.1437	0.0174
10 Faridpur	0.14	11.17	290.36	1.73	31.96	23.04	0.0240	0.0370	0.8045	0.0323	0.0275	0.0746
11 Feni	172.69	106.34	330.55	4.15	103.72	4.32E+33	0.0004	0.0312	0.8101	0.0048	0.0892	0.0643
12 Hatiya	0.44	11.86	395.52	2.33	69.89	3.94	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
13 Ishurdi	2.18	5.31	179.76	1.41	8.65	5.95	0.0009	0.0245	0.8172	0.0048	0.1444	0.0081
14 Jessore	5.25	9.10	276.68	7.55	30.69	35.77	0.0107	0.0261	0.8844	0.0069	0.0425	0.0293
15 Khepupara	8.54	16.34	329.49	8.63	33.30	25.62	0.0144	0.0249	0.7579	0.0207	0.0841	0.0980
16 Khulna	1.37	10.14	436.08	2.45	95.01	141.75	0.0202	0.0387	0.7809	0.0204	0.0789	0.0607
17 Kutubdia	1.41	16.69	460.00	0.77	85.17	5.82	0.0020	0.0148	0.6349	0.0036	0.1383	0.2064
18 Madaripur	7.43	2.55	197.86	4.83	16.95	9.07	0.0025	0.0293	0.8072	0.0014	0.1495	0.0102
19 M.Court	3.90	21.17	382.95	8.84	41.51	451.19	0.0043	0.0233	0.4210	0.0097	0.0456	0.4961
20 Mongla	1.86	5.50	383.50	8.79	124.87	3.55	0.0311	0.0107	0.8289	0.0202	0.0710	0.0380
21 Mymensingh	15.20	15.66	228.89	14.65	15.31	75.20	0.0035	0.0104	0.7262	0.0166	0.2365	0.0067
22 Patuakhali	8.60	19.79	371.22	12.90	40.16	307.56	0.0416	0.0429	0.6273	0.0402	0.0419	0.2061
23 Rajshahi	7.25	3.59	186.61	9.57	13.68	14.04	0.0113	0.0260	0.4883	0.0170	0.0528	0.4046
24 Rangamati	4.33	10.48	354.31	3.55	58.67	31.58	0.0309	0.0153	0.7950	0.0408	0.0583	0.0598
25 Rangpur	3.64	5.31	245.79	5.41	24.83	26.42	0.0094	0.0226	0.7654	0.0077	0.1267	0.0682
26 Sandwip	2.04	5.31	388.93	6.06	79.94	7.88	0.0117	0.0171	0.7893	0.0174	0.0797	0.0848
27 Satkhira	3.88	7.72	201.69	6.86	9.88	29.23	0.0042	0.0108	0.7935	0.0124	0.1631	0.0161
28 Shitakunda	14.61	12.21	311.56	9.09	38.15	95.79	0.0150	0.0298	0.7779	0.0265	0.0381	0.1128
29 Srimongol	9.47	34.97	354.21	14.81	24.81	513.70	0.0304	0.0254	0.6472	0.0189	0.0792	0.1990
30 Sylhet	5.72	8.07	328.59	4.03	56.81	9.66	0.0100	0.0367	0.3721	0.0156	0.0261	0.5396
31 Tangail	4.08	3.45	311.31	5.12	65.78	5.45	0.0139	0.0195	0.7958	0.0098	0.1376	0.0234
32 Teknaf	11.59	9.45	257.44	4.45	24.34	11.66	0.0139	0.0195	0.7958	0.0098	0.1376	0.0234
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.3517	0.7413	22.9995	0.4083	3.4335	4.0658

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B128. Determination of Best Fit Distribution
Chi-square values of Relative Humidity Data for different probability distributions
Average Pre-Monsoon(Mar-May)

Station	Chi-square values						Scaling						Appendix B
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Rank 1	Rank 3	Rank 6	Rank 2	Rank 5	Rank 4	
1 Barisal	6.45	3.24	849.09	8.89	476.07	4.60	1.00	1.28	66.50	1.10	19.64	8.80	
2 Bhola	3.79	3.24	773.21	5.21	376.45	4.10	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
3 Bogra	2.16	7.03	349.47	3.41	57.29	6.57	0.0048	0.0024	0.6297	0.0066	0.3531	0.0034	
4 Chandpur	4.72	26.69	924.94	4.03	325.35	2.00	0.0032	0.0028	0.6631	0.0045	0.3229	0.0035	
5 Chittagong	7.56	7.03	849.11	9.15	412.80	16.10	0.0051	0.0165	0.8205	0.0080	0.1345	0.0154	
6 Comilla	2.98	5.31	909.12	2.40	480.37	2.06	0.0037	0.0207	0.7183	0.0031	0.2527	0.0016	
7 Cox's Bazar	9.36	3.24	831.90	8.59	451.75	12.71	0.0058	0.0054	0.6523	0.0070	0.3171	0.0124	
8 Dhaka	0.84	14.62	553.91	2.66	146.22	4.29	0.0021	0.0038	0.6483	0.0017	0.3426	0.0015	
9 Dinajpur	25.29	2.90	226.55	19.21	31.63	18.77	0.0071	0.0025	0.6314	0.0065	0.3429	0.0096	
10 Faridpur	0.82	14.28	571.72	0.81	155.00	7.29	0.0012	0.0202	0.7666	0.0037	0.2024	0.0059	
11 Feni	153.34	60.83	611.57	150.11	60.61	1.4E+28	0.0012	0.0202	0.7666	0.0037	0.2024	0.0059	
12 Hatiya	5.96	16.00	771.10	13.37	260.68	58.81	0.0780	0.0089	0.6985	0.0592	0.0975	0.0579	
13 Ishurdi	8.48	5.66	276.77	4.06	33.19	16.49	0.0011	0.0190	0.7624	0.0011	0.2067	0.0097	
14 Jessore	22.98	13.59	660.42	24.23	201.04	28.24	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	
15 Khepupara	1.56	17.03	503.97	1.61	93.71	6.02	0.0053	0.0142	0.6849	0.0119	0.2315	0.0522	
16 Khulna	10.98	19.10	783.32	6.61	253.31	5.41	0.0246	0.0164	0.8031	0.0118	0.0963	0.0478	
17 Kutubdia	2.30	12.90	895.36	0.70	380.64	3.47	0.0242	0.0143	0.6948	0.0255	0.2115	0.0297	
18 Madaripur	13.47	3.24	358.68	15.87	77.78	12.98	0.0025	0.0273	0.8078	0.0026	0.1502	0.0096	
19 M.Court	7.87	28.07	722.39	9.71	172.50	402081.91	0.0102	0.0177	0.7262	0.0061	0.2348	0.0050	
20 Mongla	3.55	14.00	751.43	3.45	353.44	82.30	0.0018	0.0100	0.6912	0.0005	0.2938	0.0027	
21 Mymensingh	16.09	9.45	359.43	14.41	55.05	46.98	0.0000	0.0001	0.0018	0.0000	0.0004	0.9977	
22 Patuakhali	2.10	23.24	587.90	2.09	116.97	27.92	0.0279	0.0067	0.7441	0.0329	0.1614	0.0269	
23 Rajshahi	1.29	7.38	291.76	0.61	37.31	4.26	0.0029	0.0116	0.6220	0.0029	0.2925	0.0681	
24 Rangamati	3.44	4.62	510.77	6.06	161.63	18.19	0.0321	0.0188	0.7168	0.0287	0.1098	0.0937	
25 Rangpur	8.43	3.59	428.19	31.53	110.01	13.51	0.0028	0.0306	0.7733	0.0027	0.1539	0.0367	
26 Sandwip	13.19	5.66	796.60	12.94	348.49	23.37	0.0038	0.0215	0.8516	0.0018	0.1089	0.0124	
27 Satkhira	8.26	10.14	340.16	8.22	46.91	34.04	0.0049	0.0066	0.7248	0.0086	0.2294	0.0258	
28 Shitakunda	7.60	4.28	539.99	8.09	180.07	22.08	0.0142	0.0060	0.7193	0.0530	0.1848	0.0227	
29 Srimongol	4.31	18.76	402.69	6.21	52.42	95.14	0.0110	0.0047	0.6637	0.0108	0.2904	0.0195	
30 Sylhet	3.53	10.83	633.95	6.18	184.53	7.56	0.0184	0.0226	0.7598	0.0184	0.1048	0.0760	
31 Tangail	2.80	3.91	503.18	4.10	210.75	5.78	0.0100	0.0056	0.7085	0.0106	0.2363	0.0290	
32 Teknaf	0.18	10.48	366.45	0.22	53.45	5.67	0.0074	0.0324	0.6949	0.0107	0.0905	0.1642	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.0042	0.0128	0.7488	0.0073	0.2180	0.0089	
							0.0042	0.0128	0.7488	0.0073	0.2180	0.0089	
							0.3254	0.4152	21.6439	0.3592	6.3917	2.8646	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B129. Determination of Best Fit Distribution

Chi-square values of Relative Humidity Data for different probability distributions
Average Monsoon(Jun-Oct)

							Scaling					Appendix B	
							Rank	1	3	6	2	5	4
							Comparison	1.00	1.39	160.38	1.04	107.98	13.83
Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	19.43	38.07	2855.19	28.38	2299.29	257.59	0.0035	0.0069	0.5193	0.0052	0.4182	0.0469	
2 Bhola	4.04	6.69	1482.72	3.72	1074.28	3.26	0.0016	0.0026	0.5759	0.0014	0.4172	0.0013	
3 Bogra	2.68	17.03	1476.34	2.60	920.31	6.45	0.0011	0.0070	0.6087	0.0011	0.3794	0.0027	
4 Chandpur	9.44	7.38	1181.96	6.95	787.79	8.65	0.0047	0.0037	0.5903	0.0035	0.3935	0.0043	
5 Chittagong	3.53	20.48	1271.65	3.71	654.76	32.10	0.0018	0.0103	0.6402	0.0019	0.3296	0.0162	
6 Comilla	1.28	5.31	1378.57	1.22	994.27	1.53	0.0005	0.0022	0.5787	0.0005	0.4174	0.0006	
7 Cox's Bazar	6.65	16.00	2154.17	6.56	2004.72	1.94	0.0016	0.0038	0.5141	0.0016	0.4784	0.0005	
8 Dhaka	3.14	12.55	1287.06	4.45	814.75	21.54	0.0015	0.0059	0.6005	0.0021	0.3801	0.0100	
9 Dinajpur	26.29	18.41	1387.29	25.37	689.42	33.76	0.0015	0.0059	0.6005	0.0021	0.3801	0.0100	
10 Faridpur	4.19	25.31	2124.64	5.74	1663.48	882.46	0.0121	0.0084	0.6362	0.0116	0.3162	0.0155	
11 Feni	0.72	9.45	1397.53	0.64	1021.59	2.04	0.0009	0.0054	0.4515	0.0012	0.3535	0.1875	
12 Hatiya	0.29	9.45	1371.50	0.40	872.29	0.91	0.0003	0.0039	0.5746	0.0003	0.4201	0.0008	
13 Ishurdi	8.48	12.55	1125.12	10.65	597.79	21.39	0.0001	0.0042	0.6082	0.0002	0.3869	0.0004	
14 Jessore	18.37	17.38	2115.29	18.03	1874.34	236.42	0.0048	0.0071	0.6335	0.0060	0.3366	0.0120	
15 Khepupara	1.99	8.41	1478.12	1.65	1140.75	6.35	0.0043	0.0041	0.4942	0.0042	0.4379	0.0552	
16 Khulna	6.56	12.21	1612.07	0.47	1275.36	3.79	0.0008	0.0032	0.5605	0.0006	0.4325	0.0024	
17 Kutubdia	4.77	3.93	1982.79	3.09	2113.76	6.60	0.0023	0.0042	0.5539	0.0002	0.4382	0.0013	
18 Madaripur	18.03	2.55	826.60	17.01	307.87	15.76	0.0012	0.0010	0.4819	0.0007	0.5137	0.0016	
19 M.Court	6.92	9.45	1622.13	6.43	1346.79	39.46	0.0023	0.0031	0.5352	0.0021	0.4443	0.0130	
20 Mongla	2.16	2.50	1545.82	2.01	1750.59	1.63	0.0152	0.0021	0.6959	0.0143	0.2592	0.0133	
21 Mymensingh	15.75	26.00	1032.69	22.60	361.95	9811.88	0.0007	0.0008	0.4678	0.0006	0.5297	0.0005	
22 Patuakhali	10.92	11.52	1114.93	9.60	580.36	50.27	0.0014	0.0023	0.0916	0.0020	0.0321	0.8706	
23 Rajshahi	10.06	17.03	1407.18	7.12	839.09	295.17	0.0061	0.0065	0.6272	0.0054	0.3265	0.0283	
24 Rangamati	6.45	7.38	1306.00	4.78	887.14	13.46	0.0039	0.0066	0.5463	0.0028	0.3258	0.1146	
25 Rangpur	5.18	16.00	1503.14	5.59	966.13	21.17	0.0029	0.0033	0.5869	0.0021	0.3987	0.0060	
26 Sandwip	0.77	10.14	1511.93	0.64	1029.44	2.44	0.0021	0.0064	0.5971	0.0022	0.3838	0.0084	
27 Satkhira	25.52	15.31	1301.46	34.71	756.46	38.55	0.0003	0.0040	0.5917	0.0002	0.4029	0.0010	
28 Shitakunda	11.90	4.62	766.79	14.04	332.09	17.62	0.0117	0.0070	0.5992	0.0160	0.3483	0.0177	
29 Srimongol	17.86	19.10	1554.39	20.82	986.46	77.70	0.0104	0.0040	0.6685	0.0122	0.2895	0.0154	
30 Sylhet	5.36	16.69	1527.19	5.60	1000.28	82.94	0.0067	0.0071	0.5808	0.0078	0.3686	0.0290	
31 Tangail	8.48	3.91	1835.14	7.79	1861.77	5.13	0.0020	0.0063	0.5789	0.0021	0.3792	0.0314	
32 Teknaf	28.09	12.21	1353.69	27.03	754.69	33.83	0.0020	0.0063	0.5789	0.0021	0.3792	0.0314	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	0.1120	0.1556	17.9688	0.1164	12.0973	1.5499	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

Table B130. Determination of Best Fit Distribution
Chi-square values of Relative Humidity Data for different probability distributions
Average Post-Monsoon(Nov-Feb)

Station							Scaling						Appendix B
							Rank	3	1	6	4	5	2
							Comparison	3.57	1.00	6.70	3.81	6.20	2.09
	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I	
1 Barisal	171.78	47.72	313.81	160.68	292.73	95.67	0.1587	0.0441	0.2899	0.1484	0.2704	0.0884	
2 Bhola	172.66	47.72	314.37	171.90	270.82	97.28	0.1607	0.0444	0.2925	0.1599	0.2520	0.0905	
3 Bogra	156.43	41.86	282.66	177.62	224.84	87.85	0.1611	0.0431	0.2910	0.1829	0.2315	0.0904	
4 Chandpur	180.88	47.72	321.04	172.74	271.97	92.60	0.1664	0.0439	0.2954	0.1589	0.2502	0.0852	
5 Chittagong	155.72	47.72	286.70	150.60	401.39	97.83	0.1366	0.0419	0.2515	0.1321	0.3521	0.0858	
6 Comilla	169.58	47.72	305.36	164.68	291.84	97.10	0.1576	0.0443	0.2837	0.1530	0.2712	0.0902	
7 Cox's Bazar	165.93	47.72	304.50	162.97	259.24	98.86	0.1597	0.0459	0.2930	0.1568	0.2495	0.0951	
8 Dhaka	166.69	47.72	302.78	152.82	250.77	97.71	0.1637	0.0469	0.2973	0.1500	0.2462	0.0959	
9 Dinajpur	105.35	28.41	202.98	143.24	209.99	61.87	0.1637	0.0469	0.2973	0.1500	0.2462	0.0959	
10 Faridpur	134.61	36.69	248.28	166.76	227.69	79.93	0.1401	0.0378	0.2700	0.1905	0.2793	0.0823	
11 Feni	167.78	47.72	313.51	166.94	252.44	97.85	0.1506	0.0410	0.2777	0.1865	0.2547	0.0894	
12 Hatiya	141.77	41.86	275.27	137.42	253.21	90.56	0.1604	0.0456	0.2997	0.1596	0.2413	0.0935	
13 Ishurdi	134.70	36.69	254.83	169.31	207.51	79.12	0.1508	0.0445	0.2928	0.1462	0.2693	0.0963	
14 Jessore	116.10	32.21	223.53	140.88	230.58	69.91	0.1527	0.0416	0.2889	0.1919	0.2352	0.0897	
15 Khepupara	68.63	20.14	145.58	89.61	176.51	42.80	0.1428	0.0396	0.2749	0.1732	0.2835	0.0860	
16 Khulna	166.24	47.72	305.70	161.80	279.51	98.62	0.1263	0.0371	0.2680	0.1649	0.3249	0.0788	
17 Kutubdia	166.87	47.72	290.28	164.67	328.90	99.13	0.1569	0.0450	0.2885	0.1527	0.2638	0.0931	
18 Madaripur	95.50	25.31	198.78	105.47	153.39	58.41	0.1520	0.0435	0.2645	0.1500	0.2997	0.0903	
19 M.Court	167.15	47.72	305.43	161.57	289.28	97.66	0.1564	0.0447	0.2858	0.1512	0.2707	0.0914	
20 Mongla	99.14	30.50	169.72	98.66	213.02	50.75	0.1500	0.0397	0.3121	0.1656	0.2409	0.0917	
21 Mymensingh	81.97	22.90	171.68	88.93	181.95	50.81	0.1498	0.0461	0.2565	0.1491	0.3219	0.0767	
22 Patuakhali	119.05	32.21	230.92	166.02	206.61	70.30	0.1370	0.0383	0.2870	0.1487	0.3041	0.0849	
23 Rajshahi	170.81	47.72	313.60	162.33	250.05	97.74	0.1443	0.0390	0.2799	0.2012	0.2504	0.0852	
24 Rangamati	119.63	32.21	237.38	145.15	190.16	69.37	0.1639	0.0458	0.3009	0.1557	0.2399	0.0938	
25 Rangpur	151.86	41.86	267.90	161.22	316.34	86.22	0.1507	0.0406	0.2990	0.1828	0.2395	0.0874	
26 Sandwip	173.04	47.72	314.90	165.26	256.00	99.05	0.1481	0.0408	0.2613	0.1572	0.3085	0.0841	
27 Satkhira	84.68	22.90	177.31	117.06	152.84	50.01	0.1639	0.0452	0.2982	0.1565	0.2424	0.0938	
28 Shitakunda	110.26	28.41	223.00	105.43	153.64	61.50	0.1400	0.0379	0.2932	0.1936	0.2527	0.0827	
29 Srirongol	136.41	36.69	255.29	170.24	227.48	77.94	0.1616	0.0416	0.3269	0.1545	0.2252	0.0901	
30 Sylhet	165.03	47.72	298.03	154.72	269.98	102.48	0.1509	0.0406	0.2824	0.1883	0.2516	0.0862	
31 Tangail	124.46	33.00	203.24	121.12	186.39	60.43	0.1590	0.0460	0.2871	0.1491	0.2601	0.0987	
32 Teknaf	87.26	25.31	173.33	118.51	222.03	59.27	0.1590	0.0460	0.2871	0.1491	0.2601	0.0987	
Critical Chi Square Value (95% Confidence Level)	5.99	5.99	7.81	5.99	7.81	5.99	4.8951	1.3693	9.1737	5.2104	8.4891	2.8624	

Note: Chi square values less than the critical Chi square values at 95% confidence level are marked in bold & italic format

APPENDIX-C

Terminology and Relevant Theory

C.1 TERMINOLOGY

Different terms are used as variables in preliminary analysis for trend analysis and probability distribution study.

C1.1 Variables

- a) **Yearly Average:** This is the arithmetic average of monthly data series of a particular year.
- b) **Yearly Maximum Monthly:** This is the maximum value among 12 months of monthly average data series for a particular year.
- c) **Yearly Minimum Monthly:** This is the minimum value among 12 months of monthly average data series for a particular year.
- d) **Average Pre-Monsoon (March-May):** This is the arithmetic average of three successive months i.e. March to May of monthly average data series for a particular year.
- e) **Average Monsoon (June-October):** This is the arithmetic average of five successive months i.e. June to October of monthly average data series for a particular year.
- f) **Average Post-Monsoon (November-February):** This is the arithmetic average of four months following monsoon, two months (November and December) for a particular year & two months (January and February) of the next year of monthly average data series.
- g) **Annual Total or Yearly Total:** This is the sum of annual or yearly data series for a particular year.
- h) **Yearly Maximum Daily:** This is the maximum value of daily data series for a particular year.
- i) **Yearly Minimum Daily:** This is the minimum value of daily data series for a particular year.
- j) **Total Pre-Monsoon (March-May):** This is the sum of three successive months i.e. March to May of monthly total data series for a particular year
- k) **Total Monsoon (June-October):** This is the sum of five successive months i.e. June to October of monthly total data series for a particular year
- l) **Total Post-Monsoon (November-February):** This is the sum of four months following monsoon, two months (November and December) for a particular year & two months (January and February) of the next year of monthly total data series.

- m) **Yearly Average Monthly:** This is the arithmetic average of twelve successive months of a particular year of monthly data series.
- n) **Yearly Average Daily:** This is the arithmetic average of 365 successive days of a particular year of daily data series.
- o) **Yearly Maximum Monthly of Monthly Average Maximum:** This is the maximum value among twelve months of monthly average of maximum data series of a particular year.
- p) **Yearly Minimum Monthly of Monthly Average Maximum:** This is the minimum value among twelve months of monthly average of maximum data series of a particular year.
- q) **Yearly Average Monthly of Monthly Average Maximum:** This is the arithmetic average of twelve successive months of monthly average of maximum data series of a particular year.
- r) **Maximum of Monthly Average Maximum of Total Pre-Monsoon (March-May):** This is the maximum value among three successive months i.e. March to May (Pre-Monsoon) of monthly average of maximum data series for a particular year.
- s) **Maximum of Monthly Average Maximum of Total Monsoon (June-October):** This is the maximum value among five successive months i.e. June to October (Monsoon) of monthly average of maximum data series for a particular year.
- t) **Maximum of Monthly Average Maximum of Total Post-Monsoon (November-February):** This is the maximum value among four months following monsoon, two months (November and December) for a particular year & two months (January and February) of the next year of monthly average of maximum data series.
- u) **Yearly Maximum Monthly of Monthly Average Minimum:** This is the maximum value among twelve months of monthly average of minimum data series of a particular year.
- v) **Yearly Minimum Monthly of Monthly Average Minimum:** This is the minimum value among twelve months of monthly average of minimum data series of a particular year.
- w) **Yearly Average Monthly of Monthly Average Minimum:** This is the arithmetic average of twelve successive months of monthly average of minimum data series of a particular year.
- x) **Minimum of Monthly Average Minimum of Total Pre-Monsoon (March-**

May): This is the minimum value among three successive months i.e. March to May (Pre-Monsoon) of monthly average of minimum data series for a particular year.

y) **Minimum of Monthly Average Minimum of Total Monsoon** (June-October): This is the minimum value among five successive months i.e. June to October (Monsoon) of monthly average of minimum data series for a particular year.

z) **Minimum of Monthly Average Minimum of Total Post-Monsoon** (November-February): This is the minimum value among four months following monsoon, two months (November and December) for a particular year & two months (January and February) of the next year of monthly average of minimum data series.

C.1.2 Global Climate related

Global Warming: Global Warming is the increase in the average temperature of the Earth's near-surface air and oceans since the mid-20th century and its projected continuation. Global surface temperature increased $0.74 \pm 0.18^\circ\text{C}$ ($1.33 \pm 0.32^\circ\text{F}$) during the 100 years ending in 2005 (IPCC, 2007).

Global Dimming: Global dimming is the gradual reduction in the amount of global direct irradiance at the Earth's surface that was observed for several decades after the start of systematic measurements in 1950s. The effect varies by location, but worldwide it has been estimated to be of the order of a 4% reduction over the three decades from 1960-1990 (Hergel et. Al., 2007)

Global Cooling: The term Global cooling is opposite of Global Warming, which is the global decrease in Earth's average temperature, is mostly the result of aerosol effects. Aerosols (solid tiny particles or tiny liquid droplets in a gas) are mostly created as the byproducts of fossil fuels combustion. If the number of aerosols in atmosphere is high they can have cooling effect on our planet by reducing the total amount of sunshine reaching the surface. (Global Cooling, 2009)

Global cooling was a conjecture during the 1970s of imminent cooling of the Earth's surface and atmosphere along with a posited commencement of glaciation. This hypothesis had little support in the scientific community, but gained temporary popular attention due to a combination of a slight downward trend of temperatures from the 1940s to the early 1970s and press reports that did not accurately reflect the scientific understanding of ice age cycles. In contrast to the global cooling conjecture, the current scientific opinion on climate change is that the Earth has not durably cooled, but undergone global warming throughout the twentieth century. (Wikipedia)

Wetter/Drier Winter: Due to climate change spatial distribution of rainfall pattern

has changed as a result some place become wetter than before because of increase in rainfall and some place become drier than before because of decrease in rainfall during winter.

Wetter/Drier Summer: Due to climate change spatial distribution of rainfall pattern has changed as a result some place become wetter than before because of increase in rainfall and some place become drier than before because of decrease in rainfall during summer.

C.1.3 Analytical method related

C.1.3.1 Time Series

A sequence of values collected over time on a particular variable is a time series. A single time series is called a realization. An ensemble of time series is a set of several time series measuring the same variable. Thus an ensemble is made up of several realizations.

C.1.3.1.1 Deterministic and Stochastic Component of Time series

A time series may be composed of only deterministic events, only stochastic events, or a combination of the two. Generally a hydrologic time series will be composed of a stochastic component superimposed on a deterministic component.

For example, the series composed of average daily temperature at some point would contain seasonal variation, the deterministic component, plus random deviations from the seasonal values, the stochastic components.

The deterministic component may be classified as a periodic component, a trend, a jump or a combination of these.

C.1.3.1.2 Stationarity of Time series

If the properties of a time series do not change with time, the series is called stationary.

Illustration – A stochastic process can be represented by $X(t)$. The pdf of $X(t)$ is denoted by $p(x;t)$ which describes the probabilistic behavior of $X(t)$ at specified time.

For a stationary series $p(x;t_1)$ equals $p(x;t_2)$ where t_1 and t_2 represent any two different possible times.

If $p(x;t_1)$ and $p(x;t_2)$ are not equal, the series is termed nonstationary.

C.1.3.2 Trend Analysis

Definition of trend analysis –Trend analysis is based on the idea that what has happened in the past gives traders an idea of what will happen in the future. There are three main types of trends. Those are -Short-term, Intermediate and long-term. (Investopedia)

Usefulness – In the context of climatologic data and hydrological data the necessity of trend analysis are the overall pattern of change in an indicator over time, comparing one time period to another time period, comparing one parameter to another, making future projections & prediction of climate change pattern

C.1.3.3 Probability Distribution

In probability and statistics, a probability distribution assigns a probability to each of the possible outcomes of a random experiment. (Wikipedia)

There are three **definitions** of probability

i) Classical probability distribution: The classical definition applies when there are n equally likely outcomes to an experiment. It is obtained by dividing the number of favorable outcomes by the total number of possible outcomes. The probability of certain events is already known or the resulting probabilities are definitive. For example:

- (1) The chance that a woman gives birth to a male or female baby ($p = 0.50$ or $\frac{1}{2}$),
- (2) The chance that tail or head appears in a toss of coin ($p = 0.50$ or $\frac{1}{2}$), and
- (3) The chance that one spot will appear in die-rolling ($p = 0.16$ or $\frac{1}{6}$)

ii) Empirical Probability Distribution: That is based on past experience. This is determined dividing the number of times an event happens by the total number of observations. For example:

- (1) 383 of 751 business graduates were employed in the past. The probability that a particular graduate will be employed in his or her major area is $\frac{383}{751} = 0.51$ or 51%.
- (2) The probability that your income tax return will be audited if there are two million mailed to your district office and 2,400 are to be audited is $\frac{2,400}{2,000,000} = 0.0012$ or 0.12%.

iii) Subjective Probability Distribution: Subjective probability is a probability assigned to an event based on whatever evidence is available. It is an educated guess. Unlike empirical probability, it is not based on past experience. Subjective probability is obtained by evaluating the available options and by assigning the probability. Examples of events that require computing subjective probability:

- (1) Estimating the probability that a person wins a jackpot lottery.
- (2) Estimating the probability that the GM will lose its first ranking in car sales.

Types of Probability distribution –

(Probability: Concepts and Applications, 2008)

There are mainly two types of probability distribution- Discrete probability distribution & Continuous Probability distribution.

Discrete probability distribution	Continuous probability distribution
- Binomial distribution	- Normal distribution
- Geometric distribution	- Uniform distribution
- Negative Binomial distribution	- Exponential distribution
- Poisson distribution	- Log-normal distribution
- Exponential distribution	- Gamma distribution
- Gamma distribution	- Beta distribution
- Multinomial distribution	- Pearson distribution
	- Extreme Value Type-I distribution
	- Extreme Value Type-III distribution

Source: (Hann, C.T)

Application of Probability Distribution

- The concept of the probability distribution and the random variables which they describe underlies the mathematical discipline of probability theory, and the science of statistics. There is spread or variability in almost any value that can be measured in a population (e.g. height of people, durability of a metal, sales growth, traffic flow, etc.); almost all measurements are made with some intrinsic error; in physics many processes are described probabilistically, from the kinetic properties of gases to the quantum mechanical description of fundamental particles. For these and many other reasons, simple numbers are often inadequate for describing a quantity, while probability distributions are often more appropriate. (Wikipedia)

-If we know the likelihood (probability, chance, risk, p) that an event, E_1 , will take place, then we can make some predictions for the future. For instance, if the probability of getting a warm spring in western Norway is $p = 0.64$ after having observed warm sea surface temperatures in the North Sea during the preceding winter,

one may use this knowledge to make seasonal predictions. In the long run, such predictions should give more (correct) hits than a pure guess ($p=50\%$).

Probability is an important concept for making forecasts and risk assessments.

-Some practical uses of probability distributions are:

- To calculate confidence intervals for parameters and to calculate critical regions for hypothesis tests.
- For univariate data, it is often useful to determine a reasonable distributional model for the data.
- Statistical intervals and hypothesis tests are often based on specific distributional assumptions. Before computing an interval or test based on a distributional assumption, we need to verify that the assumption is justified for the given data set. In this case, the distribution does not need to be the best-fitting distribution for the data, but an adequate enough model so that the statistical technique yields valid conclusions.
- Simulation studies with random numbers generated from using a specific probability distribution are often needed.

(<http://www.itl.nist.gov/div898/handbook/eda/section3/eda36.htm>)

Analytical Methods of Probability Distribution:

i) Discrete probability distributions -

- Binomial distribution: The probability of $X=x$ occurrences of an event in n independent trials if p is the probability of an occurrences in a single trial is given by

$$f_x(x;n,p) = \binom{n}{x} p^x q^{n-x} \quad x = 0,1,2,3,\dots,n \dots \dots \dots (c.1)$$

The mean and variance of the binomial distributions are

$$E(X) = np \dots \dots \dots (c.2)$$

$$\text{Var}(X) = npq \dots \dots \dots (c.3)$$

- Geometric distribution: The probability that the first exceedence (or success) of a Bernoulli trial occurs on the X^{th} trial can be found by noting that for the first exceedence to be on the X^{th} trial there must be $X-1$ preceding trials without an exceedence followed by 1 trial with an exceedence. Thus the desired probability is pq^{x-1} . This is known as the geometric distribution

$$f_x(x;p) = p q^{x-1} \quad x = 1,2,3,\dots \dots \dots (c.4)$$

The mean and variance of the geometric distributions are

$$E(X) = 1/p \dots\dots\dots(c.5)$$

$$\text{Var}(X) = q/p^2 \dots\dots\dots(c.6)$$

- Negative Binomial distribution: The probability that the k^{th} exceedance (success) occurs on the X^{th} trial ($X \geq k$) of a Bernoulli process can be found by noting that there must be $k-1$ exceedances in the $X-1$ trials preceding the k^{th} exceedance on the X^{th} trial. The probability of $k-1$ exceedances in $X-1$ trials is given by the binomial distribution as $\binom{x-1}{k-1} p^{k-1} q^{x-k}$. The probability that the X^{th} trial results in an exceedance is p so the desired probability is given by the negative binomial distribution.

$$f_x(x; k, p) = \binom{x-1}{k-1} p^k q^{x-k} \quad x = k, k+1, \dots\dots\dots(c.7)$$

The mean and variance of the negative binomial distributions are

$$E(X) = k/p \dots\dots\dots(c.8)$$

$$\text{Var}(X) = kq/p^2 \dots\dots\dots(c.9)$$

- Poisson distribution: Consider a Bernoulli process defined over an interval of time (or space) so that p is the probability that an event may occur during the time interval. If the time interval is allowed to become shorter and shorter so that the probability, p , of an event occurring in the interval gets smaller and the number of trials, n , increase in such a fashion that np remains constant, then the expected number of occurrences in any total time intervals remains the same. It can be shown that as n gets large and p gets small so that np remains a constant, λ , the binomial distribution approaches the poisson distribution given by

$$f_x(x; \lambda) = \lambda^x e^{-\lambda} / x! \dots\dots\dots(c.10)$$

$$x = 0, 1, 2, \dots\dots\dots, \lambda > 0 \dots\dots\dots(c.11)$$

The mean and variance of the poisson distribution are

$$E(X) = \lambda \dots\dots\dots(c.12)$$

$$\text{Var}(X) = \lambda \dots\dots\dots(c.13)$$

- Exponential distribution: The probability distribution of the time, T , between occurrences of the event can be found by noting that the $\text{prob}(T \leq t)$ is equal to $1 - \text{prob}(T > t)$. The $\text{prob}(T > t)$ is equal to the probability of no occurrences in time t which is $f_x(0; \lambda, t)$ or $e^{-\lambda t}$.

Thus

$$\text{Prob}(T \leq t) = P_T(t; \lambda) = 1 - e^{-\lambda t} \dots\dots\dots(c.14)$$

This is a cumulative distribution known as exponential distribution.

The mean and variance of the exponential distribution are

$$E(X) = 1/\lambda \dots\dots\dots(c.15)$$

$$\text{Var}(X) = 1/\lambda^2 \dots\dots\dots(c.16)$$

- Gamma distribution: The probability distribution of the time of the n^{th} occurrence can be found by noting that the time to the n^{th} occurrence is the sum of n independent random variables, $T_1 + T_2 + \dots\dots\dots + T_n$, from the exponential distribution. The method of derived distributions can be used with the result that the probability density function of the time to the n^{th} occurrence is

$$P_T(t; n, \lambda) = \lambda^n t^{n-1} e^{-\lambda t} / (n-1)! \dots\dots\dots(c.17)$$

Where, $t > 0$; $\lambda > 0$; $n = 1, 2, \dots\dots\dots$

The mean and variance of the Gamma distribution are

$$E(T) = n/\lambda \dots\dots\dots(c.18)$$

$$\text{Var}(T) = n/\lambda^2 \dots\dots\dots(c.19)$$

- Multinomial distribution: The binomial can be generalized to include the probabilities of outcome of several types rather than the two possible outcomes of the binomial. If the probabilities associate with each of k distinct outcomes are $p_1, p_2, \dots\dots\dots p_k$, then in independent trials the probability of x_1 outcomes of type 1, x_2 outcomes of type 2, $\dots\dots\dots x_k$ outcomes of type k is given by the multinomial distribution as

$$f_{\lambda}(\underline{x}; n, \underline{p}) = n! \prod_{i=1}^k p_i^{x_i} / x_i! \dots\dots\dots(c.20)$$

Where \underline{x} and \underline{p} are vectors.

The mean and variance of the multinomial distributions are

$$E(X_i) = np_i \dots\dots\dots(c.21)$$

$$\text{Var}(X_i) = np_i (1 - p_i) \dots\dots\dots(c.22)$$

ii) Some Continuous probability distributions are-

- Normal distribution: The normal distribution is a two parameter (μ and σ^2) distribution which is bell-shaped, continuous and symmetrical about μ (the coefficient of skew is zero). The parameters μ and σ^2 are sometimes denoted as location and scale parameters. A common notation for indicating that a random variable is normally distributed with mean μ and variance σ^2 is $N(\mu, \sigma^2)$.

The random variable Z is said to be standardized (has $\mu = 0$ and $\sigma^2 = 1$) and $N(0,1)$ is said to be standard normal distribution. The standard normal distribution is given by

$$P_z(z) = (2\Pi)^{-1/2} e^{-z^2/2} \quad -\infty < z < \infty \dots\dots\dots(c.23)$$

And the cumulative standard normal is given by

$$\text{Prob}(Z \leq z) = P_z(z) = \int_{-\infty}^z (2\Pi)^{-1/2} e^{-t^2/2} dt \dots\dots\dots(c.24)$$

Normal Approximation:

- Binomial distribution: The normal distribution approximates the binomial distribution if n is large. Thus as n gets large the distribution of

$$Z = (X-\mu)/\sigma = (X-np)/\sqrt{\{np(1-p)\}} \text{ approaches a } N(0, 1) \dots\dots\dots(c.25)$$

- Poisson distribution: The poisson distribution may be approximated by a normal distribution. In this case the distribution of

$$Z = (X-\mu)/\sigma = (X-\lambda)/\lambda^{1/2} \text{ approaches a } N(0, 1) \dots\dots\dots(c.26)$$

- Uniform distribution: If a continuous random process is defined over an interval a to b and the probability of an outcome of this process being in a subinterval of a to b is proportional to the length of the subinterval, the process is said to be uniformly distributed over the interval a to b. The probability density function for the continuous uniform distribution is

$$p_x(x) = 1/(\beta - \alpha) \quad \text{for } \alpha \leq X \leq \beta \dots\dots\dots(c.27)$$

And the cumulative distribution function is

$$P_x(x) = (x - \alpha) / (\beta - \alpha) \quad \text{for } \alpha \leq X \leq \beta \dots\dots\dots(c.28)$$

The mean and variance of the uniform distribution are

$$E(X) = (\beta + \alpha)/2 \dots\dots\dots(c.29)$$

$$\text{Var}(X) = (\beta - \alpha)^2/12 \dots\dots\dots(c.30)$$

- Exponential distribution: The exponential density function is given by

$$p_x(x) = \lambda e^{-\lambda x} \quad x > 0, \lambda > 0 \dots\dots\dots(c.31)$$

and the cumulative exponential by

$$P_x(x) = \int_0^x \lambda e^{-\lambda t} dt = 1 - e^{-\lambda x} \quad x > 0 \dots\dots\dots(c.32)$$

The mean and variance of the exponential distribution are

$$E(X) = 1/\lambda \dots\dots\dots(c.33)$$

$$\text{Var}(X) = 1/\lambda^2 \dots\dots\dots(c.34)$$

- Log-normal distribution: If a random variable X is made up of the sum of many small effects, then X might be expected to be normally distributed. Similarly if X is equal to the product of many small effects, that is if $X = X_1 X_2 \dots\dots\dots X_n$, then the $\ln X$ can be expected to be normally distributed. This can be seen by letting $Y = \ln(X_1 X_2 \dots\dots\dots X_n) = \ln X_1 + \ln X_2 + \dots\dots\dots + \ln X_n$. Since the X_i are random variables, the $\ln X_i$ are also random variables and $Y = \ln X$ is a random variable made up from the sum of many other random variables. From the central limit theorem, Y can be expected to be normally distributed with mean μ_y and variance σ_y^2 .

The distribution of X can be found from

$$p_x(x) = p_y(y) | dy/dx | \dots\dots\dots(c.35)$$

$$\text{Since } Y = \ln X \dots\dots\dots(c.36)$$

$$| dy/dx | = 1/x \quad x > 0 \dots\dots\dots(c.37)$$

and

$$p_x(x) = (2\pi)^{-1/2} \sigma_y^{-1} \exp[-1/2(\ln x - \mu_y)^2/\sigma_y^2] \quad x > 0 \dots\dots\dots(c.38)$$

$Y = \ln X$ is normally distributed while X is log-normally distributed.

The parameters μ_y and σ_y^2 can be estimated by

$$y_i = \ln x_i \dots\dots\dots(c.39)$$

Then

$$\bar{y} = \sum y_i/n \dots\dots\dots(c.40)$$

$$\text{and } s_y^2 = (\sum y_i^2 - n \bar{y}^2)/(n-1) \dots\dots\dots(c.41)$$

with all of the summations from 1 to n.

The mean and variance of the lognormal distribution are

$$E(X) = \exp(\mu_y + \sigma_y^2/2) \dots\dots\dots(c.42)$$

$$\text{Var}(X) = \mu_x^2 [\exp(\sigma_y^2) - 1] \dots\dots\dots(c.43)$$

- Gamma distribution: The distribution of the sum of n exponentially distributed random variables each with parameters n and λ . In general n does not have to be an integer. The gamma density function is given by

$$p_x(x) = \lambda^\eta x^{\eta-1} e^{-\lambda x} / \Gamma(\eta) \quad x, \lambda, \eta > 0 \dots\dots\dots(c.44)$$

$\Gamma(\eta)$ is the gamma function.

The mean and variance of the Gamma distribution are

$$E(X) = \eta/\lambda \dots\dots\dots(c.45)$$

$$\text{Var}(X) = \eta/\lambda^2 \dots\dots\dots(c.46)$$

- Beta distribution : The beta density function is given by

$$p_x(x) = x^{\alpha-1}(1-x)^{\beta-1} / B(\alpha,\beta) \dots\dots\dots(c.47)$$

The function $B(\alpha,\beta) = \int_0^1 x^{\alpha-1} (1-x)^{\beta-1} dx$ is called the beta function. The beta function is related to the gamma function by

$$B(\alpha,\beta) = \Gamma(\alpha) \Gamma(\beta) / \Gamma(\alpha+\beta) \dots\dots\dots(c.48)$$

The mean and variance of the beta distribution are

$$E(X) = \alpha/(\alpha+\beta) \dots\dots\dots(c.2)$$

$$\text{Var}(X) = \alpha\beta / [(\alpha+\beta+1) (\alpha+\beta)^2] \dots\dots\dots(c.49)$$

- Pearson distribution: Karl Pearson (Elderton 1953) has proposed that frequency distribution can be represented by

$$P_x(x) = \exp\int_{-\infty}^x (t + \alpha) / (\beta_0 + \beta_1 t + \beta_2 t^2 + \dots\dots\dots) dt \dots\dots\dots(c.50)$$

-Extreme Value Type-I distribution: The probability density function for the extreme value type 1 distribution is

$$P_x(x) = \exp\{ \bar{+}(x - \beta)/\alpha - \exp[\bar{+}(x - \beta)/\alpha] \} / \alpha \dots\dots\dots(c.51)$$

$$-\infty < x < \infty; -\infty < \beta < \infty; \alpha > 0$$

where the + applies for maximum values and the - for minimum values. The parameters α and β are scale and location parameters with β being the mode of distribution. The type 1 for maximum and minimum values are symmetrical with each other about β .

The mean and variance of the extreme value type 1 distribution are

$$E(X) = \beta + 0.577\alpha \text{ (maximum)} \dots\dots\dots(c.52)$$

$$\beta - 0.577\alpha \text{ (minimum)} \dots\dots\dots(c.53)$$

$$\text{Var}(X) = 1.645\alpha^2 \dots\dots\dots(c.54)$$

- Extreme Value Type-III distribution: The extreme value type III distribution arises when the extreme is from a parent distribution that is limited in the direction of interest. This distribution has found its greatest use in hydrology as the distribution of low stream flows. Naturally low flows are bounded by zero on the left. The type III for minimum values is also known as the Weibull distribution. The probability density function of the extreme value type III distribution is

$$p_x(x) = \alpha (x - \epsilon)^{\alpha-1} (\beta - \epsilon)^{-\alpha} \exp [-\{(x - \epsilon)/(\beta - \epsilon)\}^\alpha] \dots\dots\dots (c.55)$$

and the cumulative distribution function becomes

$$P_x(x) = 1 - \exp [-\{(x - \epsilon)/(\beta - \epsilon)\}^\alpha] \dots\dots\dots (c.56)$$

By using the transformation

$$y = (x - \epsilon)/(\beta - \epsilon)^\alpha \dots\dots\dots (c.57)$$

The mean and variance of the extreme value type III distribution are

$$E(X) = \epsilon + (\beta - \epsilon) \Gamma(1 + 1/\alpha) \dots\dots\dots (c.58) \quad \text{and}$$

$$\text{Var}(X) = (\beta - \epsilon)^2 [\Gamma(1 + 2/\alpha) - \Gamma^2(1 + 1/\alpha)] \dots\dots\dots (c.59)$$

Testing the goodness of fit of data to probability distribution:

- Chi-Square Goodness of Fit Test: One of the most commonly used tests for goodness of fit for empirical data to specified theoretical frequency distributions is the chi-square test. This test makes a comparison between the actual number of observations and the expected number of observations that fall in the class intervals. The expected numbers are calculated by multiplying the expected relative frequency by the total number of observations. The test statistic is calculated from the relationship

$$\chi^2_c = \sum_{i=1}^k (O_i - E_i)^2 / E_i \dots\dots\dots (c.60)$$

Where k is the number of class intervals, O_i is the observed and E_i is the expected number of observations in the i^{th} class interval. The distribution of χ^2_c is a chi-square distribution with $k-p-1$ degrees of freedom where p is the number of parameters estimated from the data. The hypothesis that the data are from the specified distribution is rejected if

$$\chi^2_c > \chi^2_{1-\alpha, k-p-1} \dots\dots\dots (c.61)$$

- The Kolmogorov-smirnov Test : This test is conducted as follows:

- 1) Let $P_x(x)$ be the completely specified theoretical cumulative distribution function under the null hypothesis.
- 2) Let $S_n(x)$ be the sample cumulative density function based on n observations. For any observed x , $S_n(x) = k/n$ where k is the number of observations less than or equal to x .

3) The maximum deviation, D , defined by

$$D = \max [P_x(x) - S_n(x)] \dots\dots\dots(c.62)$$

4) If, for the chosen significant level, the observed value of D is greater than or equal to the critical tabulated value of the Kolmogorov-Smirnov statistic, the hypothesis is rejected. (Hann, C.T., 1977).

APPENDIX-D

Sample Calculation

D.1 SAMPLE CALCULATION FOR TREND ANALYSIS

D.1.1 Sample data

For sample calculation of trend analysis, the rainfall data (mm) for Barisal station has been chosen as a random sample. Sample data (Barisal, Rainfall) follows:

Table D.1: Sample data of Rainfall (mm) for Barisal station

Year	Jan.	Feb.	Mar.	Apr.	May	Jun	Jul.	Aug.	Sep	Oct	Nov.	Dec	Annual	Yearly maximum monthly	Yearly minimum monthly	Yearly average monthly	Yearly average daily	Total Pre-monsoon (Mar-May)	Total monsoon (Jun-Oct)	Total Post-monsoon (Nov-Feb)
1980	0	55	47	13	235	272	526	297	192	282	0	0	1919	526	0	159.9	5	295	1569	67
1981	24	43	115	412	280	433	521	217	173	71	0	33	2322	521	0	193.5	6	807	1415	90
1982	0	57	17	178	65	465	223	593	219	6	34	11	1868	593	0	155.7	5	260	1506	92
1983	8	39	18	92	318	292	399	575	312	192	48	19	2312	575	8	192.7	6	428	1770	83
1984	16	0	1	102	283	1025	448	431	224	118	0	1	2649	1025	0	220.8	7	386	2246	4
1985	1	2	45	64	226	322	291	308	180	198	8	0	1645	322	0	137.1	5	335	1299	14
1986	6	0	7	102	181	254	381	252	526	135	274	1	2119	526	0	176.6	6	290	1548	282
1987	4	3	8	150	96	275	568	683	302	93	37	0	2219	683	0	184.9	6	254	1921	59
1988	0	22	65	96	393	565	422	459	228	101	113	0	2464	565	0	205.3	7	554	1775	127
1989	0	14	1	89	164	206	453	203	413	451	0	0	1994	453	0	166.2	5	254	1726	79
1990	0	79	182	139	352	386	457	299	190	194	70	30	2378	457	0	198.2	7	673	1526	124
1991	10	14	38	53	191	562	356	369	232	497	54	16	2392	562	10	199.3	7	282	2016	172
1992	4	98	0	1	205	190	299	326	210	98	8	0	1439	326	0	119.9	4	206	1123	44
1993	1	35	173	216	352	384	408	556	245	134	12	0	2516	556	0	209.7	7	741	1727	29
1994	4	13	92	101	178	571	202	378	144	87	7	0	1777	571	0	148.1	5	371	1382	70
1995	1	62	6	12	144	657	517	342	208	156	153	0	2258	657	0	188.2	6	162	1880	172
1996	0	19	12	131	98	446	314	322	202	270	4	1	1819	446	0	151.6	5	241	1554	36
1997	1	30	79	203	235	205	406	191	378	7	11	12	1758	406	1	146.5	5	517	1187	225
1998	148	54	273	251	179	208	616	516	254	89	270	0	2858	616	0	238.2	8	703	1683	270
1999	0	0	0	20	212	260	527	404	301	228	1	2	1955	527	0	162.9	5	232	1720	38
2000	19	16	50	135	246	286	389	203	245	171	10	0	1770	389	0	147.5	5	431	1294	27
2001	0	17	4	16	282	641	556	191	149	305	67	0	2228	641	0	185.7	6	302	1842	86

Year	Jan.	Feb.	Mar.	Apr.	May	Jun	Jul.	Aug.	Sep	Oct	Nov.	Dec	Annual	Yearly maximum monthly	Yearly minimum monthly	Yearly average monthly	Yearly average daily	Total Pre-monsoon (Mar-May)	Total monsoon (Jun-Oct)	Total Post-monsoon (Nov-Feb)
2002	19	0	36	101	324	577	717	272	346	53	92	0	2537	717	0	211.4	7	461	1965	96
2003	0	4	117	104	85	521	243	186	206	301	0	28	1795	521	0	149.6	5	306	1457	28
2004	0	0	11	87	126	316	241	478	1067	203	0	0	2529	1067	0	210.8	7	224	2305	11
2005	11	0	138	26	85	326	463	302	174	415	0	3	1943	463	0	161.9	5	249	1680	3
2006	0	0	4	41	274	352	384	378	522	41	2	0	1998	522	0	166.5	5	319	1677	74
2007	0	72	33	50	146	471	560	218	326	357	95	0	2328	560	0	194.0	6	229	1932	160
2008	41	24	22	16	64	239	550	357	210	341	0	0	1864	550	0	155.3	5	102	1697	

D.1.2 Trend Analysis

Trend analysis of each variable including twelve months of each climatologic parameter has been carried out over time that means year. Figure D.1, D.2 and D.3 are sample output of trend analysis for Barisal station for rainfall parameter.

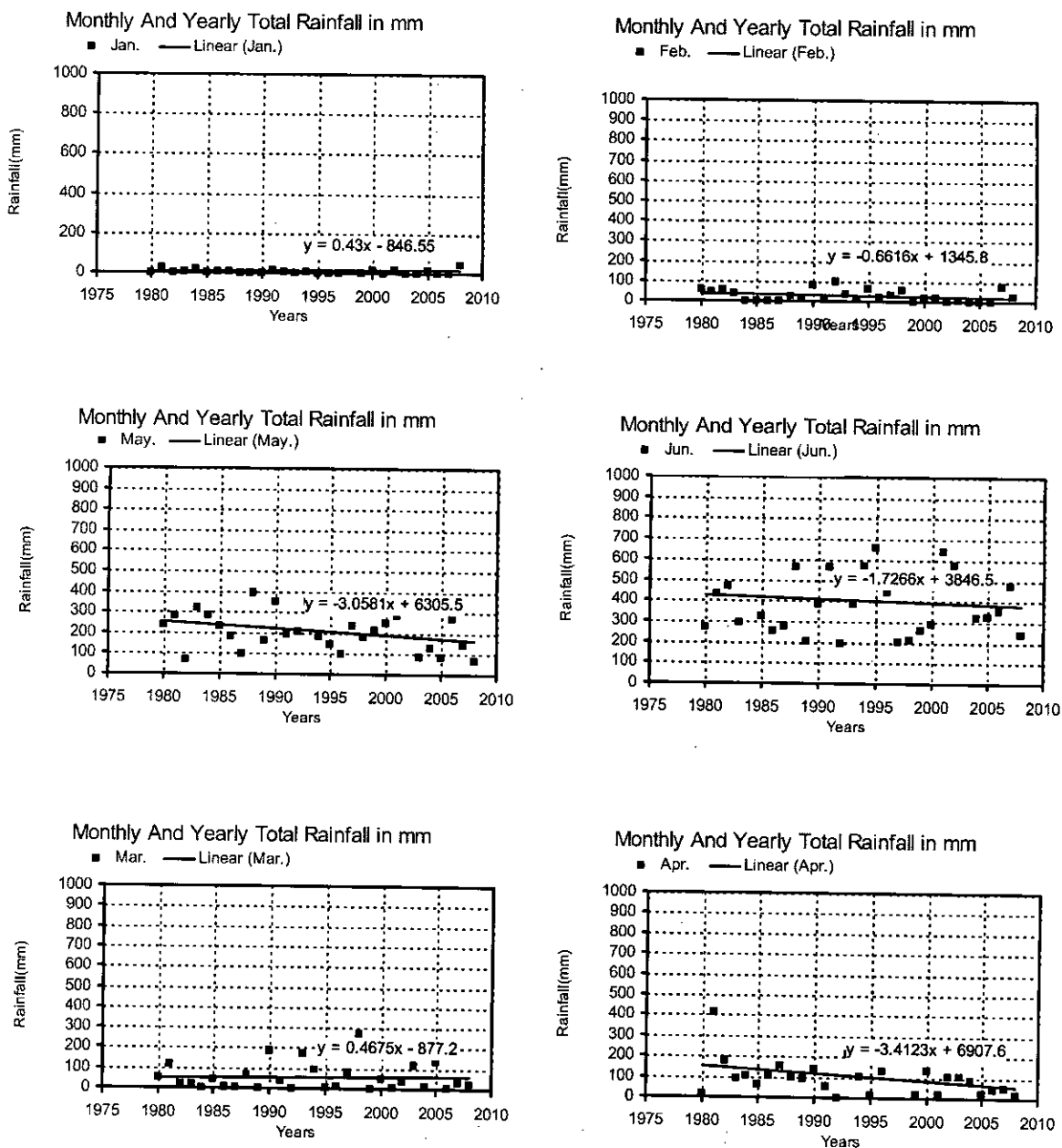


Figure D.1: Sample output of trend analysis for rainfall variables (Barisal)

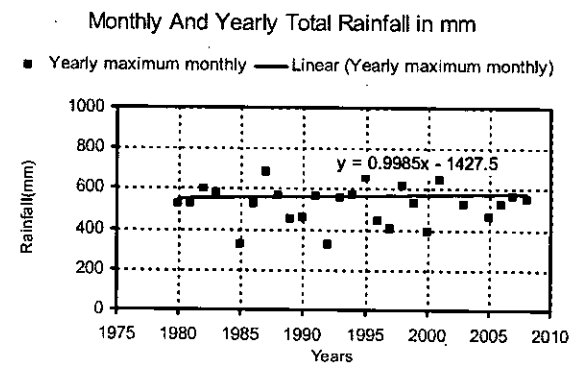
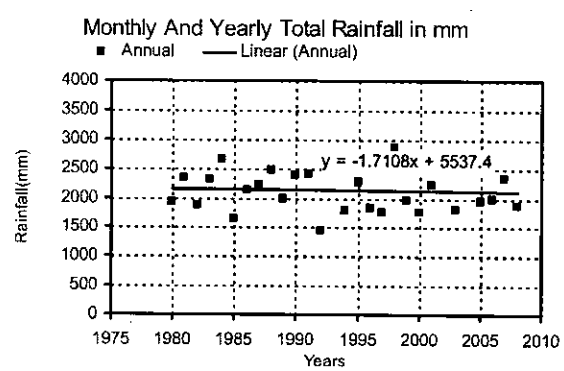
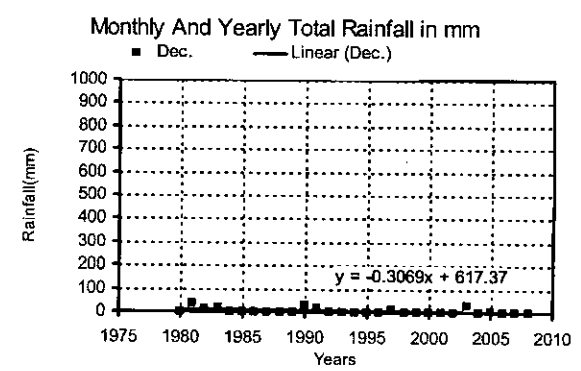
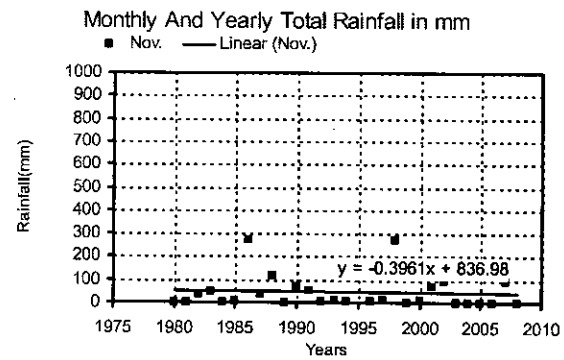
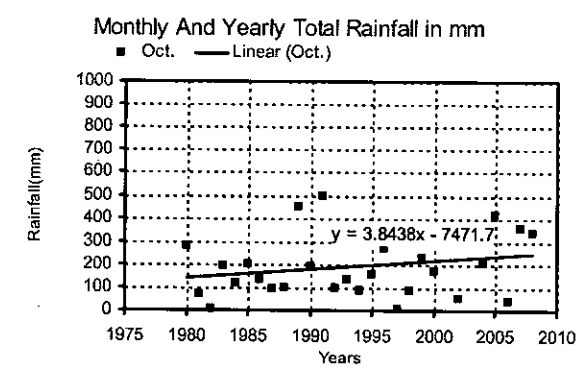
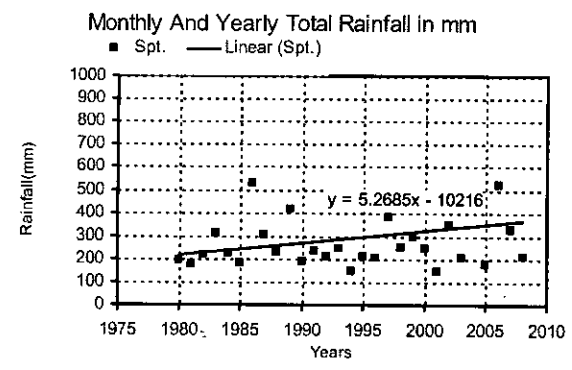
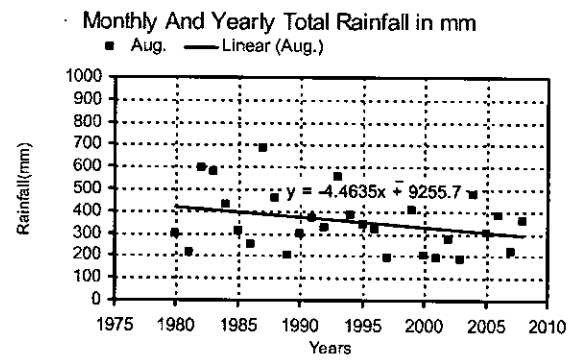
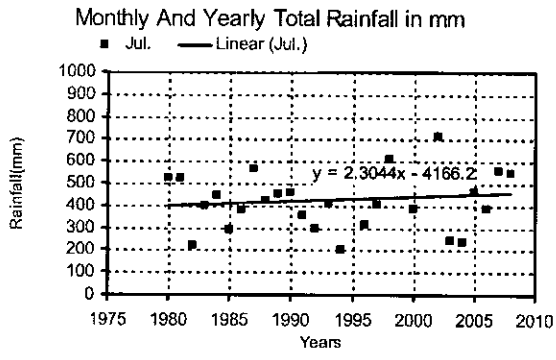


Figure D.2: Sample output of trend analysis for rainfall variables (Barisal)

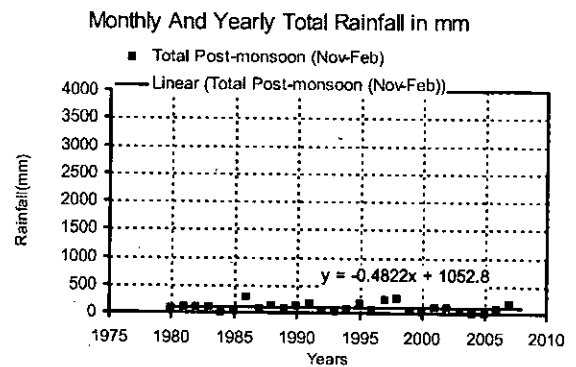
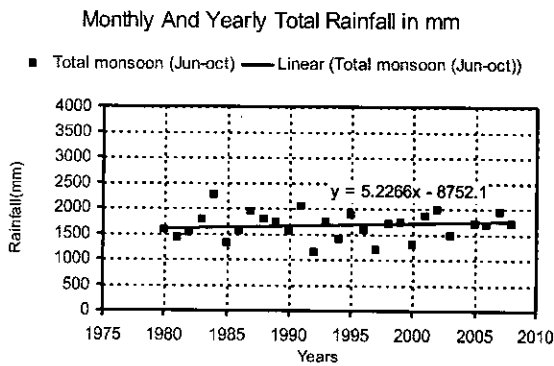
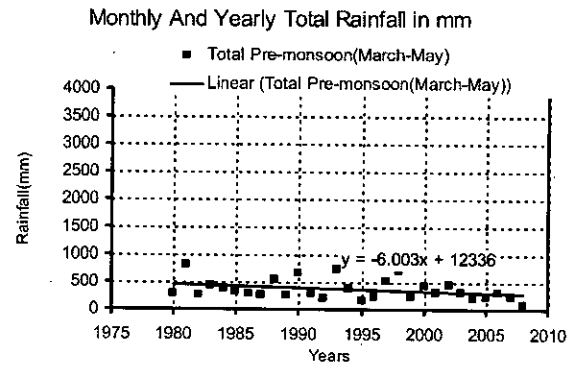
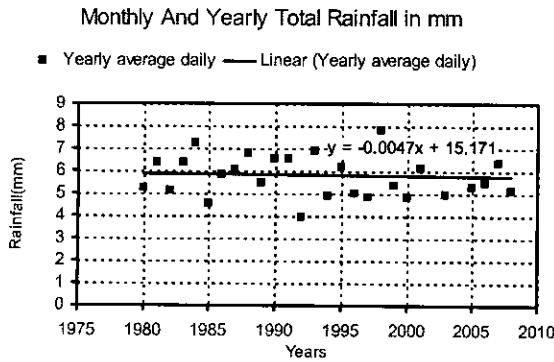
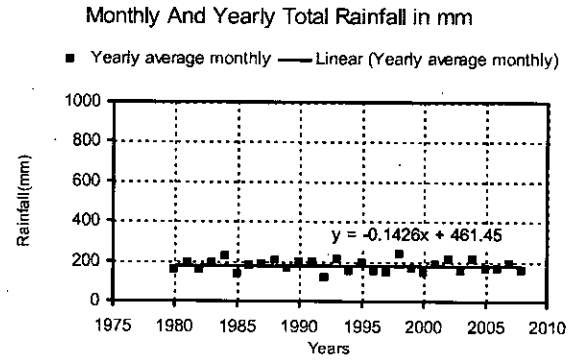
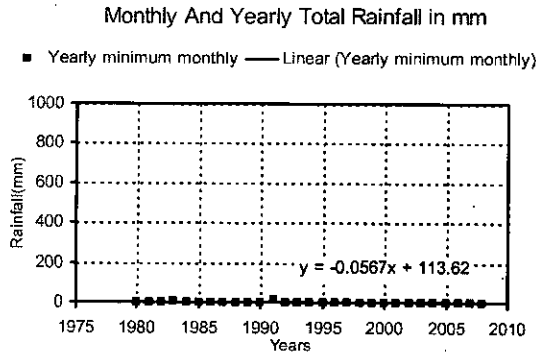


Figure D.3: Sample output of trend analysis for rainfall variables (Barisal)

D.1.3 Sample calculation for Probability Distribution

D.1.3.1 Sample data

For sample calculation the rainfall data (mm) from Barisal station for the month of July has been chosen as a random sample.

Table D.2: Sample Data (Barisal, Rainfall, July) follows:

Year	Jul.	Log
1980	526	2.72099
1981	521	2.71684
1982	223	2.3483
1983	399	2.60097
1984	448	2.65128
1985	291	2.46389
1986	381	2.58092
1987	568	2.75435
1988	422	2.62531
1989	453	2.6561
1990	457	2.65992
1991	356	2.55145
1992	299	2.47567
1993	408	2.61066
1994	202	2.30535
1995	517	2.71349
1996	314	2.49693
1997	406	2.60853
1998	616	2.78958
1999	527	2.72181
2000	389	2.58995
2001	556	2.74507
2002	717	2.85552
2003	243	2.38561
2004	241	2.38202
2005	463	2.66558
2006	384	2.58433
2007	560	2.74819
2008	550	2.74036

Following values are obtained from this data:

Max	717
Min	202
Mean μ	428.9
Std. Dev. σ	126.7

D.1.3.2 Normal distribution

Table D.3: Chi-square test using Normal distribution:

Class Limit		Observed #, O	Z	Z (absolute)	Sign	Z ₁	Z ₂	P _Z (Z ₁)	P _Z (Z ₂)	P _Z (Z) (absolute)	P _Z (Z)	Expected cumulative relative frequency	Expected relative frequency	Expected Number, E	χ^2
Lower Limit	Upper Limit														
200	310	6	-0.9381	0.9381	-	0.9300	0.9400	0.8238	0.8264	0.8259	0.1741	0.1511	0.1511	4.38	0.596
310	420	8	-0.0699	0.0699	-	0.0600	0.0700	0.5239	0.5279	0.5279	0.4721	0.4099	0.2587	7.50	0.033
420	530	9	0.7982	0.7982	+	0.7900	0.8000	0.7852	0.7881	0.7876	0.7876	0.6837	0.2739	7.94	0.141
530	640	5	1.6664	1.6664	+	1.6600	1.6700	0.9515	0.9525	0.9521	0.9521	0.8266	0.1429	4.14	0.177
640	750	1	2.5345	2.5345	+	2.5300	2.5400	0.9943	0.9945	0.9944	0.9944	0.8633	0.0367	1.06	0.004
	N =	29												Computed Chi square value =	0.951

Z, the reduced variable, is calculated using the following formula:

$Z = \frac{X - \mu}{\sigma}$, where, X = upper class limit; μ = Arithmetic mean; σ = Standard deviation

for the first row, $Z = \frac{X - \mu}{\sigma} = \frac{310 - 428.862}{126.7} = -0.9381$

$P(-Z) = 1 - P(Z)$

Probability for this value P(Z) is determined using the probability table. In the table no data for P(0.9381) is provided. But P(0.93) and P(0.94) is used to calculate the interpolated value for P(0.9381).

$P(0.9381) = P(0.93) + (0.9381 - 0.93) \{P(0.94) - P(0.93)\} / (0.94 - 0.93) = 0.8238 + (0.0081)(0.8264 - 0.8238) / (0.01) = 0.8259$

$P(-0.9381) = 1 - P(0.9381) = 1 - 0.8259 = 0.1741$

Expected cumulative relative frequency, $ECRF = \frac{\Delta x \cdot P_z(Z)}{\sigma}$;

where, Δx = class interval

Therefore, *Expected cumulative frequency* = $110 \times 0.1741 / 126.7 = 0.1511$

Expected Relative frequency is calculated by subtracting two consecutive *ECRFs*. The first row is the direct value of *ECRF*, i.e. 0.1511.

For second row, *Expected Relative frequency* = $0.4099 - 0.1511 = 0.2588$

Expected Number (E) = $N \times \text{Expected Relative Frequency} = 29 \times 0.1511 = 4.38$

Chi-square value, $\chi^2 = \frac{(O - E)^2}{E} = \frac{(6 - 4.38)^2}{4.38} = 0.596$

Table D.4: Probability table for calculation of probabilities:

Cumulative Probability of the Standard normal distribution										
z	0	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767
2	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857
2.2	0.9861	0.9864	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884	0.9887	0.9890
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916
2.4	0.9918	0.9920	0.9922	0.9925	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952
2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9979	0.9980	0.9981
2.9	0.9981	0.9982	0.9982	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986
3	0.9987	0.9987	0.9987	0.9988	0.9988	0.9989	0.9989	0.9989	0.9990	0.9990
3.1	0.9990	0.9991	0.9991	0.9991	0.9992	0.9992	0.9992	0.9992	0.9993	0.9993
3.2	0.9993	0.9993	0.9994	0.9994	0.9994	0.9994	0.9994	0.9995	0.9995	0.9995
3.3	0.9995	0.9995	0.9995	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9997
3.4	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9998

D.1.3.3 Uniform distribution

Table D.5: Chi-square test using Uniform distribution:

Class Limit		Observed #, O	Expected Number, E	χ^2
Lower Limit	Upper Limit			
200	310	6	5.80	0.007
310	420	8	5.80	0.834
420	530	9	5.80	1.766
530	640	5	5.80	0.110
640	750	1	5.80	3.972
N =		29		6.690

Expected number, $E = N / \text{Number of Class intervals} = 29/5 = 5.80$

$$\text{Chi-square value, } \chi^2 = \frac{(O-E)^2}{E} = \frac{(6-5.80)^2}{5.80} = 0.007$$

D.1.3.4 Exponential Distribution

Table D.6: Chi-square test using Exponential distribution:

Class Limit		Observed #, O	Exp. Density Fn $P_A(X_i)$	Expected relative frequency	Expected Number, E	χ^2
Lower Limit	Upper Limit					
200	310	6	0.0011	0.1245	3.61	1.582
310	420	8	0.0009	0.0963	2.79	9.704
420	530	9	0.0007	0.0745	2.16	21.635
530	640	5	0.0005	0.0577	1.67	6.620
640	750	1	0.0004	0.0446	1.29	0.067
N =		29			Computed Chi square value =	39.608

$$\lambda = \frac{1}{x}, \text{ where } x = \text{mean}, \text{ Exp. Density Fn } P_A(x_i) = \lambda e^{-(\lambda x_i)} = \frac{e^{-\frac{310}{428.9}}}{428.9} = 0.0011$$

$$\text{Expected relative frequency, } f_{x_i} = \Delta x_i \cdot P_A(x_i) = 110 \times 0.0011 = 0.1245$$

$$\text{Expected Number (E)} = N \times \text{Expected Relative Frequency} = 29 \times 0.1245 = 3.61$$

$$\text{Chi-square value, } \chi^2 = \frac{(O-E)^2}{E} = \frac{(6-3.61)^2}{3.61} = 1.582$$

D.1.3.5 Log-normal distribution

This distribution is the same as Normal distribution except that, log values of the main data was used to construct the class intervals.

Table D.7: Chi-square test using Log-normal distribution:

Class Limit		Observed #, O	Z	Z (absolute)	Sign	Z ₁	Z ₂	P _Z (Z ₁)	P _Z (Z ₂)	P _Z (Z) (absolute)	P _Z (Z)	Expected cumulative relative frequency	Expected relative frequency	Expected Number, E	χ^2	
Lower Limit	Upper Limit															
2.30	2.42	4	-1.3760	1.3760	-	1.3700	1.3800	0.9147	0.9162	0.9156	0.0844	0.0726	0.0726	2.10	1.707	
2.42	2.54	3	-0.5161	0.5161	-	0.5100	0.5200	0.6950	0.6985	0.6971	0.3029	0.2604	0.1878	5.45	1.099	
2.54	2.66	11	0.3437	0.3437	+	0.3400	0.3500	0.6331	0.6368	0.6345	0.6345	0.5455	0.2851	8.27	0.902	
2.66	2.78	9	1.2035	1.2035	+	1.2000	1.2100	0.8849	0.8869	0.8856	0.8856	0.7615	0.2159	6.26	1.197	
2.78	2.90	2	2.0633	2.0633	+	2.0600	2.0700	0.9803	0.9808	0.9805	0.9805	0.8430	0.0816	2.37	0.056	
N =		29														Computed Chi square value = 4.962

D.1.3.6 Poisson distribution

Table D.8: Chi-square test using Poisson distribution:

Class Limit		Observed #, O	Z	Z (absolute)	Sign	Z ₁	Z ₂	P _Z (Z ₁)	P _Z (Z ₂)	P _Z (Z) (absolute)	P _Z (Z)	Expected cumulative relative frequency	Expected relative frequency	Expected Number, E	χ^2	
Lower Limit	Upper Limit															
200	310	6	-5.7396	5.7396	-	5.7300	5.7400	0.9998	0.9998	0.9998	0.0002	0.0011	0.0011	0.03	1156.563	
310	420	8	-0.4279	0.4279	-	0.4200	0.4300	0.6628	0.6664	0.6657	0.3343	1.7759	1.7749	51.47	36.715	
420	530	9	4.8838	4.8838	+	4.8800	4.8900	0.9998	0.9998	0.9998	0.9998	5.3106	3.5347	102.51	85.297	
530	640	5	10.1955	10.1955	+	10.1900	10.2000	0.9998	0.9998	0.9998	0.9998	5.3106	0.0000	0.00	-	
640	750	1	15.5072	15.5072	+	15.5000	15.5100	0.9998	0.9998	0.9998	0.9998	5.3106	0.0000	0.00	-	
N =		29														Computed Chi square value = 1278.574

In Poisson distribution is similar to normal distribution except that the *reduced variate* (Z) and *Expected Cumulative Relative Frequency* ($ECRF$) is calculated differently.

$$Z = \frac{X - \lambda}{\lambda^{1/2}} = \frac{310 - 428.862}{428.862^{1/2}} = -5.7396$$

where X = upper class limit; λ = mean

$$ECRF = \frac{\Delta x \cdot P_z(Z)}{\lambda^{1/2}} = \frac{110 \times 0.0002}{428.862^{1/2}} = 0.0011$$

D.1.3.7 Extreme Value (EV-I) Distribution

Table D.9: Chi-square test using EV-I distribution:

Class Limit		Observed #, O	Y	Expected cumulative relative frequency	Expected relative frequency	Expected Number, E	χ^2
Lower Limit	Upper Limit						
200	310	6	-0.6260	0.1541	0.1541	4.47	0.524
310	420	8	0.4875	0.5411	0.3870	11.22	0.925
420	530	9	1.6010	0.8173	0.2762	8.01	0.122
530	640	5	2.7144	0.9359	0.1186	3.44	0.709
640	750	1	3.8279	0.9785	0.0426	1.23	0.045
N =		29				Computed Chi square value =	2.325

$$\alpha = \frac{\sqrt{6}}{\pi} S = \frac{\sqrt{6}}{\pi} 126.7 = 98.7912 \quad (S = \text{standard deviation})$$

$$U = x - 0.5772 \alpha = 428.862 - 0.5772 \times 98.7912 = 371.84$$

$$\text{Reduced variate, } Y = \frac{X - U}{\alpha} = \frac{310 - 371.84}{98.7912} = -0.6260$$

$$ECRF, F(x_i) = e^{-e^{-Y}} = e^{-e^{0.6260}} = 0.1541$$

D.1.3.8 Goodness of Fit Test of the probability distribution methods

For explaining the computing process a sample data sheet for Post monsoon average of "Summary of Wind Speed" is chosen.

Table D.10: Sample analysis to find the best fit distribution

Wind Speed Post-monsoon Average(November-February)								Rank	4	3	5	1	6	2
								Comparison	1.40	1.35	3.39	1.00	18.02	1.16
	Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I		Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
1	Barisal	9.63	5.21	33.04	6.59	682.98	5.45		0.0130	0.0070	0.0445	0.0089	0.9193	0.0073
2	Bhola	7.17	26.64	85.82	3.94	1447.90	2.95		0.0046	0.0169	0.0545	0.0025	0.9196	0.0019
3	Bogra	9.45	14.50	173.11	11.62	177.38	607.10		0.0095	0.0146	0.1743	0.0117	0.1786	0.6113
4	Chandpur	10.24	0.93	19.74	10.91	293.56	7.53		0.0299	0.0027	0.0576	0.0318	0.8561	0.0220
5	Chittagong	2.42	13.79	37.13	5.69	73.74	9.06		0.0170	0.0972	0.2618	0.0401	0.5199	0.0639
6	Comilla	5.44	22.00	38.76	1.30	201.59	1.76		0.0201	0.0812	0.1431	0.0048	0.7443	0.0065
7	Cox's Bazar	7.66	3.79	43.84	7.45	186.19	6.64		0.0300	0.0148	0.1715	0.0292	0.7285	0.0260
8	Dhaka	6.62	2.36	36.75	14.70	495.73	2.83		0.0118	0.0042	0.0657	0.0263	0.8869	0.0051
9	Dinajpur	9.99	18.43	20.35	1.27	78.78	1.45		0.0118	0.0042	0.0657	0.0263	0.8869	0.0051
10	Faridpur	9.76	2.00	30.44	18.10	206.57	8.31		0.0767	0.1415	0.1562	0.0098	0.6047	0.0111
11	Feni	11.01	1.29	21.67	18.58	200.44	7.49		0.0355	0.0073	0.1106	0.0658	0.7506	0.0302
12	Hatiya	7.01	12.00	18.69	7.25	42.42	2.01		0.0423	0.0049	0.0832	0.0713	0.7695	0.0288
13	Ishurdi	7.13	10.93	83.09	6.68	788.53	14.08		0.0784	0.1343	0.2091	0.0812	0.4746	0.0224
14	Jessore	10.37	3.07	22.31	11.41	176.43	5.85		0.0078	0.0120	0.0913	0.0073	0.8661	0.0155
15	Khepupara	2.93	10.21	19.97	3.90	93.30	2.70		0.0452	0.0134	0.0972	0.0497	0.7689	0.0255
16	Khulna	3.33	5.93	16.44	10.61	80.20	2.08		0.0220	0.0768	0.1501	0.0293	0.7014	0.0203
17	Kutubdia	1.87	8.07	44.66	7.22	187.80	5.67		0.0281	0.0500	0.1386	0.0895	0.6763	0.0176
18	Madaripur	8.65	3.07	17.15	12.95	228.74	5.20		0.0073	0.0316	0.1749	0.0283	0.7356	0.0222
19	M.Court	7.40	5.93	44.22	83.30	328.13	17.72		0.0152	0.0122	0.0909	0.1712	0.6742	0.0364
20	Mongla	4.24	12.84	30.27	16.06	96.39	19.62		0.0314	0.0111	0.0622	0.0470	0.8295	0.0189
21	Mymensingh	3.49	7.36	81.71	12.31	852.30	2.41		0.0236	0.0716	0.1687	0.0895	0.5372	0.1094
22	Patuakhali	5.17	14.86	14.17	3.91	46.05	2.13		0.0036	0.0077	0.0852	0.0128	0.8882	0.0025
23	Rajshahi	8.81	2.00	24.63	12.39	129.28	7.56		0.0599	0.1722	0.1642	0.0453	0.5337	0.0247
24	Rangamati	300.39	38.07	37.87	1.57	83.45	9.16		0.0477	0.0108	0.1334	0.0671	0.7001	0.0409
25	Rangpur	0.92	12.36	60.26	3.63	404.56	1.80		0.6384	0.0809	0.0805	0.0033	0.1774	0.0195
26	Sandwip	7.60	22.36	37.78	9.41	87.86	6.03		0.0019	0.0256	0.1246	0.0075	0.8367	0.0037

27	Satkhira	21.38	25.57	18.59	3.98	21.64	9.82
28	Shitakunda	16.85	21.29	24.53	2.06	120.13	8.02
29	Srimongol	13.36	10.83	43.77	20.22	453.19	12.77
30	Sylhet	6.07	6.64	105.91	5.22	480.88	3.13
31	Tangail	6.07	6.64	105.91	5.22	480.88	3.13
32	Teknaf	2.37	20.93	48.79	2.05	199.65	1.52

0.0445	0.1307	0.2209	0.0550	0.5137	0.0353
0.2117	0.2532	0.1841	0.0394	0.2143	0.0972
0.0873	0.1104	0.1272	0.0107	0.6228	0.0416
0.0241	0.0195	0.0790	0.0365	0.8178	0.0231
0.0100	0.0109	0.1742	0.0086	0.7911	0.0052
0.0100	0.0109	0.1742	0.0086	0.7911	0.0052

Sum = 1.7004 1.6424 4.1194 1.2163 21.9157 1.4059

In the left table Chi-square test results of 6 distributions for all the stations were listed. The minimum value of Chi-square test denotes the best fit distribution.

For comparison between different stations all the values were converted to a scale of 1 and noted on the right table. For example:

	Station	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I		Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
3	Bogra	9.45	14.50	173.11	11.62	177.38	607.10		0.0095	0.0146	0.1743	0.0117	0.1786	0.6113
	Sum of values = 9.45 + 14.5 + 173.11 + 11.62 + 177.38 + 607.1 = 993.16								= 9.45 + 993.16	= 14.5 + 993.16	= 173.11 + 993.16	= 11.62 + 993.16	= 177.38 + 993.16	= 607.1 + 993.16

The scaled values for each column of the right table were added to get the cumulative score of each distribution. The smallest cumulative distribution is the best-fit distribution. This ranking is noted at the top of the table. Besides, the comparisons of other values as a ratio to the minimum value are also noted to get a clearer picture of comparison.

Scaling

	Normal	Uniform	Exponential	Log-Normal	Poisson	EV-I
Sum =	1.7004	1.6424	4.1194	1.2163	21.9157	1.4059
Rank	4	3	5	1	6	2
Comparison	1.40 (=1.7004/1.2163)	1.35 (=1.6424/1.2163)	3.39 (=4.1194/1.2163)	1.00	18.02 (=21.9157/1.2163)	1.16 (=1.4059/1.2163)

Now it can be seen that Log-Normal is the best fit distribution. But EV-1, Uniform and Normal distributions are not that bad in comparison.

D.1.3.9 Comparison of Chi-square value with critical Chi-square value

Calculated Chi-square values were compared with the corresponding critical chi-square value for 95% confidence level to assure its adequacy. The following table D.11 shows the calculation of the degrees of freedom for different distribution. This value of the degree of freedom is then used to find the critical chi-square value from Table D.12 for 95% degrees of freedom.

Table D.11: Calculation of degrees of freedom (ν)

Name of the distribution	k	l	$\nu = k-l-1$	Corresponding chi-square value for 95% confidence level
Normal distribution	5	2	2	5.99
Uniform distribution	5	2	2	5.99
Exponential distribution	5	1	3	7.81
Log-normal distribution	5	2	2	5.99
Poisson distribution	5	1	3	7.81
EV-1 distribution	5	2	2	5.99

Table D.12: χ^2 Distribution

ν	$\chi^2_{.995}$	$\chi^2_{.99}$	$\chi^2_{.975}$	$\chi^2_{.95}$	$\chi^2_{.90}$	$\chi^2_{.75}$	$\chi^2_{.50}$	$\chi^2_{.25}$	$\chi^2_{.10}$	$\chi^2_{.05}$	$\chi^2_{.025}$	$\chi^2_{.01}$	$\chi^2_{.005}$
1	7.88	6.63	5.02	3.84	2.71	1.32	0.455	0.102	0.0158	0.0039	0.001	0.0002	0
2	10.6	9.21	7.38	5.99	4.61	2.77	1.39	0.575	0.211	0.103	0.0506	0.0201	0.01
3	12.8	11.3	9.35	7.81	6.25	4.11	2.37	1.21	0.584	0.352	0.216	0.115	0.072
4	14.9	13.3	11.1	9.49	7.78	5.39	3.36	1.92	1.06	0.711	0.484	0.297	0.207
5	16.7	15.1	12.8	11.1	9.24	6.63	4.35	2.67	1.61	1.15	0.831	0.554	0.412
6	18.5	16.8	14.4	12.6	10.6	7.84	5.35	3.45	2.2	1.64	1.24	0.872	0.676
7	20.3	18.5	16	14.1	12	9.04	6.35	4.25	2.83	2.17	1.69	1.24	0.989
8	22	20.1	17.5	15.5	13.4	10.2	7.34	5.07	3.49	2.73	2.18	1.65	1.34
9	23.6	21.7	19	16.9	14.7	11.4	8.34	5.9	4.17	3.33	2.7	2.09	1.73
10	25.2	23.2	20.5	18.3	16	12.5	9.34	6.74	4.87	3.94	3.25	2.56	2.16
11	26.8	24.7	21.9	19.7	17.3	13.7	10.3	7.58	5.58	4.57	3.82	3.05	2.6
12	28.3	26.2	23.3	21	18.5	14.8	11.3	8.44	6.3	5.23	4.4	3.57	3.07
13	29.8	27.7	24.7	22.4	19.8	16	12.3	9.3	7.04	5.89	5.01	4.11	3.57
14	31.3	29.1	26.1	23.7	21.1	17.1	13.3	10.2	7.79	6.57	5.63	4.66	4.07
15	32.8	30.6	27.5	25	22.3	18.2	14.3	11	8.55	7.26	6.26	5.23	4.6
16	34.3	32	28.8	26.3	23.5	19.4	15.3	11.9	9.31	7.96	6.91	5.81	5.14
17	35.7	33.4	30.2	27.6	24.8	20.5	16.3	12.8	10.1	8.67	7.56	6.41	5.7
18	37.2	34.8	31.5	28.9	26	21.6	17.3	13.7	10.9	9.39	8.23	7.01	6.26
19	38.6	36.2	32.9	30.1	27.2	22.7	18.3	14.6	11.7	10.1	8.91	7.63	6.84
20	40	37.6	34.2	31.4	28.4	23.8	19.3	15.5	12.4	10.9	9.59	8.26	7.43
21	41.4	38.9	35.5	32.7	29.6	24.9	20.3	16.3	13.2	11.6	10.3	8.9	8.03
22	42.8	40.3	36.8	33.9	30.8	26	21.3	17.2	14	12.3	11	9.54	8.64
23	44.2	41.6	38.1	35.2	32	27.1	22.3	18.1	14.8	13.1	11.7	10.2	9.26
24	45.6	43	39.4	36.4	33.2	28.2	23.3	19	15.7	13.8	12.4	10.9	9.89
25	46.9	44.3	40.6	37.7	34.4	29.3	24.3	19.9	16.5	14.6	13.1	11.5	10.5
26	48.3	45.6	41.9	38.9	35.6	30.4	25.3	20.8	17.3	15.4	13.8	12.2	11.2
27	49.6	47	43.2	40.1	36.7	31.5	26.3	21.7	18.1	16.2	14.6	12.9	11.8
28	51	48.3	44.5	41.3	37.9	32.6	27.3	22.7	18.9	16.9	15.3	13.6	12.5
29	52.3	49.6	45.7	42.6	39.1	33.7	28.3	23.6	19.8	17.7	16	14.3	13.1
30	53.7	50.9	47	43.8	40.3	34.8	29.3	24.5	20.6	18.5	16.8	15	13.8
40	66.8	63.7	59.3	55.8	51.8	45.6	39.3	33.7	29.1	26.5	24.4	22.2	20.7
50	79.5	76.2	71.4	67.5	63.2	56.3	49.3	42.9	37.7	34.8	32.4	29.7	28

v	$\chi^2_{.995}$	$\chi^2_{.99}$	$\chi^2_{.975}$	$\chi^2_{.95}$	$\chi^2_{.90}$	$\chi^2_{.75}$	$\chi^2_{.50}$	$\chi^2_{.25}$	$\chi^2_{.10}$	$\chi^2_{.05}$	$\chi^2_{.025}$	$\chi^2_{.01}$	$\chi^2_{.005}$
60	92	88.4	83.3	79.1	74.4	67	59.3	52.3	46.5	43.2	40.5	37.5	35.5
70	104.2	100.4	95	90.5	85.5	77.6	69.3	61.7	55.3	51.7	48.8	45.4	43.3
80	116.3	112.3	106.6	101.9	96.6	88.1	79.3	71.1	64.3	60.4	57.2	53.5	51.2
90	128.3	124.1	118.1	113.1	107.6	98.6	89.3	80.6	73.3	69.1	65.6	61.8	59.2
100	140.2	135.8	129.6	124.3	118.5	109.1	99.3	90.1	82.4	77.9	74.2	70.1	67.3