This article presents long-term analyzed rainfall and temperature data obtained from the National Metrological Agency (NMA) of Ethiopia. Using tables and graphic trends of analysis, the article shows the low and declining level of average annual rainfall as well as the high inter-annual fluctuations for 18 weather stations located in different agro-climatic zones of the country. The high variation of annual maximum and minimum temperature has been similarly observed for decades in the stations. Ethiopia’s average annual temperature has risen between 1955 and 2015 by 1.65 °C. The country’s agricultural production depends heavily on local temperature and rainfall. The evidence is clear that a slight change in such climatic elements negatively affects the food security condition of both producers and consumers. Although data from the Central Statistical Agency (CSA) show that major cereal crop production has increased at the national level, partly due to the increasing application of fertilizers and modern seeds, Ethiopia’s food security condition is deteriorating due to global climatic events caused droughts and rain failure. The rate of food price inflation is thus often higher than the general consumer price inflation rate.

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How data was acquired: Climate data were obtained following formal application procedure to the authority. Different year agricultural sample survey and the consumer price index data available at the CSA of Ethiopia were used.

Data format: Analyzed

Data source location: 18 weather stations: Addis Ababa; Arba Minch; Axum; Bahir Dar; Beshoftu; Combolcha; Debre Markos; Dire Dawa; Gode; Gondar; Gore; Hawassa; Jimma; Mekele; Methara; Neghele; Nekemte; and Robe.

Experimental factors: Data used in this article were obtained from the NMA and CSA of Ethiopia.

Experimental features: Tables and graphic trends of analysis were employed.

Data accessibility: The data are with this article.

Value of the data:

- Gives information on the changing condition of climatic elements’ impact on production and food prices.
- Can be reproduced by researchers and experts working in the field.
- Useful to identify vulnerable communities and social groups to the effects of climate change risk for interventions.

1. Data

The figures and tables of rainfall and temperature were analyzed based on the data obtained from 18 weather stations located in different agro-climatic zones of Ethiopia. Fig. 1 is the location map of metrological stations. The declining and low level of average annual rainfall overtime as well as high inter-annual fluctuation for 18 weather stations are presented in Figs. 2–20. Information on temperature are presented in Tables. Table 1 shows the average annual temperature of Ethiopia (1980–2016). The mean annual temperature of Ethiopia is presented in Table 2. The following tables (Tables 3–19) present the variation of mean annual maximum and minimum temperatures of the weather stations. In Figs. 21 and 22 area cultivated under improved seeds, local seeds, types of fertilizer and applied areas and the consumer price index in Ethiopia were calculated and presented. The last two Figs. 23 and 24 demonstrate the progressive increase in agricultural production such as cereals, oil seeds and pulses and the consumer price index respectively.

2. Methods and materials

The unprocessed long-term elements of climate such as rainfall and temperature data obtain from the National Metrological Agency (NMA) of Ethiopia were analyzed using tables and graphic trends of analysis. Annual rainfall and mean annual temperature of 18 representative weather stations were computed in order to calculate the country’s mean annual rainfall and the inter-annual fluctuations and average annual temperature. The article used different year agricultural sample survey reports of Central Statistical Agency (CSA) of Ethiopia. Based on the data, the trends of major cereals crop production, area cultivated under improved seeds, local seeds, types of fertilizer and applied areas and the consumer price index in Ethiopia were calculated and presented. The author used Microsoft EXCEL software to analyze the data and present the result in graphs and tables.
Fig. 1. Location map of 18 weather stations.

Fig. 2. Mean annual rainfall of Ethiopia.
Source: Computed based on raw data from National Metrological Agency (NMA) of Ethiopia.
Fig. 3. Annual rainfall in Addis Ababa weather station.
Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

Fig. 4. Annual rainfall in Arba Minch weather station.
Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.
Fig. 5. Annual rainfall in *Axum* weather station.
Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

Fig. 6. Annual rainfall in *Bahir Dar* weather station.
Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.
Fig. 7. Annual rainfall in Beshoftu weather station.  
Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

Fig. 8. Annual rainfall in Combolcha weather station.  
Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.
Fig. 9. Annual rainfall in Debre Markos weather station. 
Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

Fig. 10. Annual rainfall in Dire Dawa weather station. 
Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.
Fig. 11. Annual rainfall in Gode weather station.
Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

Fig. 12. Annual rainfall in Gondar weather station.
Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.
Fig. 13. Annual rainfall in Gore weather station.
Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

Fig. 14. Annual rainfall in Hawassa weather station.
Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.
Fig. 15. Annual rainfall in Jimma weather station.
Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

Fig. 16. Annual rainfall in Mekele weather station.
Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.
Fig. 17. Annual rainfall in Metehara weather station.
Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

Fig. 18. Annual rainfall in Neghele weather station.
Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.
Fig. 20. Annual rainfall in Robe weather station.
Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.
### Table 1
Average annual temperature in Ethiopia: representative weather stations. *Source:* Computed based on raw data from National Metrological Agency (NMA) of Ethiopia. *Note:* data from Bahir Dar and Axum weather stations are not included here.

| Year | Addis Ababa | Arba Minch | Hawassa | Combolcha | Debre Zeit | Dire Dawa | Robe Metkel | Gondar | Gore | Jimma | Mekele | Metehara | Neghele | Nekemte | Average annual Temp. |
|------|-------------|------------|---------|-----------|------------|-----------|-------------|--------|------|-------|--------|----------|---------|---------|-----------------------|
| 1955 | 18.9        | –          | –       | 17.69     | 15.24      | 18.55     | 24.86       | –      | –    | –     | –      | –        | –       | –       | 18.70                  |
| 1960 | 18.85       | –          | –       | 19.7      | 15.2      | 18.87     | 24.97       | –      | 12.7 | –     | –      | 18.37    | –       | –       | 18.49                  |
| 1965 | 18.9        | –          | –       | 18.89     | 15.28     | 19.09     | 24.7        | 12.19  | 27.98| –     | –      | 19.59    | 17.73   | 18.82   | 18.57                  |
| 1970 | 19.65       | –          | –       | 19.2      | 16.45     | 19.05     | 24.93       | 12.93  | 28.82| –     | –      | 19.9     | 18.24   | 18.73   | 18.63                  |
| 1975 | 19.82       | –          | 18.68   | 17.82     | 15.76     | 18.26     | 25.02       | 12.82  | 28.86| –     | –      | 20.03    | 17.9    | 18.6    | 16.99                  |
| 1980 | 19.92       | –          | 19.9    | 19.07     | 16.22     | 18.93     | 25.4        | 14     | 28.92| –     | –      | 19.97    | 18.6     | 19.19   | 17.66                  |
| 1985 | 15.72       | 24.62      | 18.74   | 15.82     | 16.06     | 18.38     | 25.17       | 15.12  | 28.05| 20.16 | 18.1    | 18.3    | 17.21   | 24.89   | 19.12    | 17.65                  |
| 1990 | 16.1        | 24.08      | 19.76   | 19.73     | 16.04     | 19.13     | 25.37       | 15.02  | 29   | 19.54 | 19.95   | 19.01   | 11.2    | 25.37   | 21.23   | 18.51                  |
| 1995 | 16.6        | 23.8       | 20.2    | 19.49     | 16.95     | 19.65     | 25.85       | 14.93  | –    | 20.85 | 19.17   | 19.94   | 17.88   | 26.17   | 21.12   | 18.75                  |
| 2000 | 16.62       | 23.66      | 19.88   | 19.3     | 16.35     | 19.41     | 25.68       | 14.08  | 28.91| 19.44 | 18.82   | 19.79   | 18.15   | 25.42   | 20.75   | 18.6                   |
| 2005 | 16.89       | 23.88      | 20.21   | 19.73     | 16.83     | 18.48     | 26.06       | 15.2   | 29.72| 20.67 | 19.56   | 19.6    | 18.01   | 25.93   | 21.28   | 19.0                   |
| 2010 | 16.95       | 23.94      | 20.62   | 20.4     | 17.09     | 18.78     | 25.9        | 15.43  | 30   | 20.73 | 19.42   | 20.14   | 18.23   | 26.07   | 21.76   | 18.99                  |
| 2015 | 18.55       | 24.65      | 21.44   | 20.48    | 17.37     | 20.18     | 25.71       | 15.72  | 29.67| 20.67 | 19.36   | 20.43   | 18.23   | 26.88   | 22.44   | 18.57                  |
Table 2
Variation of annual maximum and minimum temperature in Addis Ababa (1955–2015). Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

| Year    | Average annual temp. (Max) | Average annual temp. (Min) | Mean annual temperature |
|---------|---------------------------|---------------------------|------------------------|
| Addis Ababa 1955 | 29.75 | 8.04 | 18.90 |
| Addis Ababa 1960 | 29.80 | 7.90 | 18.85 |
| Addis Ababa 1965 | 30.36 | 7.44 | 18.90 |
| Addis Ababa 1970 | 30.50 | 8.80 | 19.65 |
| Addis Ababa 1975 | 30.97 | 8.67 | 19.82 |
| Addis Ababa 1980 | 30.79 | 9.05 | 19.92 |
| Addis Ababa 1985 | 22.63 | 8.82 | 15.72 |
| Addis Ababa 1990 | 23.19 | 9.02 | 16.10 |
| Addis Ababa 1995 | 23.73 | 9.48 | 16.60 |
| Addis Ababa 2000 | 23.58 | 9.66 | 16.62 |
| Addis Ababa 2005 | 23.80 | 9.98 | 16.89 |
| Addis Ababa 2010 | 22.87 | 11.04 | 16.95 |
| Addis Ababa 2015 | 24.30 | 12.80 | 18.55 |

Table 3
Variation of annual maximum and minimum temperature in Arba Minch (1975–2015). Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

| Year    | Average annual temp. (Max) | Average annual temp. (Min) | Mean annual temperature |
|---------|---------------------------|---------------------------|------------------------|
| Arba Minch 1985 | 31.06 | 18.18 | 24.62 |
| Arba Minch 1990 | 30.20 | 17.95 | 24.08 |
| Arba Minch 1995 | 30.36 | 17.23 | 23.80 |
| Arba Minch 2000 | 30.65 | 16.67 | 23.66 |
| Arba Minch 2005 | 30.35 | 17.40 | 23.88 |
| Arba Minch 2010 | 29.99 | 17.89 | 23.94 |
| Arba Minch 2015 | 31.38 | 17.91 | 24.65 |

Table 4
Variation of annual maximum and minimum temperature in Axum (2006–2016). Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

| Year    | Average annual temp. (Max) | Average annual temp. (Min) | Mean annual temperature |
|---------|---------------------------|---------------------------|------------------------|
| Axum 2006 | 24.30 | 12.03 | 18.16 |
| Axum 2007 | 26.26 | 12.28 | 19.27 |
| Axum 2008 | 26.30 | 12.18 | 19.24 |
| Axum 2009 | 27.37 | 12.57 | 19.97 |
| Axum 2010 | 26.65 | 12.19 | 19.42 |
| Axum 2011 | 26.05 | 11.70 | 18.87 |
| Axum 2012 | 26.04 | 11.73 | 18.88 |
| Axum 2013 | 26.04 | 11.90 | 18.97 |
| Axum 2014 | 25.94 | 11.58 | 18.76 |
| Axum 2015 | 26.59 | 11.78 | 19.18 |
| Axum 2016 | 26.92 | 12.33 | 19.62 |
Table 5
Variation of annual maximum and minimum temperature in Bahir Dar (2002–2016). Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

| Year   | Average annual temp. (Max) | Average annual temp. (Min) | Mean annual temperature |
|--------|---------------------------|---------------------------|------------------------|
| Bahir Dar 2002 | 26.20                      | 7.3                       | 16.75                  |
| Bahir Dar 2003 | 29.55                      | 12.7                      | 21.13                  |
| Bahir Dar 2004 | 25.56                      | 12.68                     | 19.12                  |
| Bahir Dar 2005 | 26.96                      | 12.92                     | 19.94                  |
| Bahir Dar 2006 | 26.75                      | 12.87                     | 19.81                  |
| Bahir Dar 2007 | 26.78                      | 10.32                     | 18.55                  |
| Bahir Dar 2008 | 26.83                      | 11.59                     | 19.21                  |
| Bahir Dar 2009 | 27.60                      | 12.33                     | 19.96                  |
| Bahir Dar 2010 | 27.07                      | 12.52                     | 19.80                  |
| Bahir Dar 2011 | 26.99                      | 11.46                     | 19.22                  |
| Bahir Dar 2012 | 27.68                      | 12.11                     | 19.85                  |
| Bahir Dar 2013 | 28.78                      | 11.61                     | 20.20                  |
| Bahir Dar 2014 | 27.69                      | 14.08                     | 20.88                  |
| Bahir Dar 2015 | 28.50                      | 13.78                     | 21.17                  |
| Bahir Dar 2016 | 27.02                      | 14.68                     | 20.85                  |

Table 6
Variation of annual maximum and minimum temperature in Beshoftu (1951–2013). Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

| Year | Average annual temp. (Max) | Average annual temp. (Min) | Mean annual temperature |
|------|---------------------------|---------------------------|------------------------|
| Beshoftu 1951 | 25.56                      | 9.95                      | 17.75                  |
| Beshoftu 1955 | 26.27                      | 10.84                     | 18.55                  |
| Beshoftu 1960 | 26.19                      | 11.56                     | 18.87                  |
| Beshoftu 1965 | 26.50                      | 11.69                     | 19.09                  |
| Beshoftu 1970 | 26.34                      | 11.80                     | 19.07                  |
| Beshoftu 1975 | 25.49                      | 11.03                     | 18.26                  |
| Beshoftu 1980 | 26.58                      | 11.28                     | 18.93                  |
| Beshoftu 1985 | 25.96                      | 10.80                     | 18.38                  |
| Beshoftu 1990 | 26.30                      | 11.95                     | 19.13                  |
| Beshoftu 1995 | 26.86                      | 12.43                     | 19.65                  |
| Beshoftu 2000 | 26.72                      | 12.10                     | 19.41                  |
| Beshoftu 2005 | 26.60                      | 10.37                     | 18.48                  |
| Beshoftu 2010 | 26.54                      | 11.02                     | 18.78                  |
| Beshoftu 2013 | 29.45                      | 10.91                     | 20.18                  |

Table 7
Variation of annual maximum and minimum temperature in Combolcha (1952–2015). Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

| Year | Average annual temp. (Max) | Average annual temp. (Min) | Mean annual temperature |
|------|---------------------------|---------------------------|------------------------|
| Combolcha 1952 | 20.98                      | 8.34                      | 14.66                  |
| Combolcha 1955 | 23.15                      | 12.24                     | 17.69                  |
| Combolcha 1960 | 26.80                      | 12.65                     | 19.7                   |
| Combolcha 1965 | 25.90                      | 11.87                     | 18.89                  |
| Combolcha 1970 | 26.00                      | 12.40                     | 19.20                  |
| Combolcha 1975 | 24.99                      | 10.65                     | 17.82                  |
| Combolcha 1980 | 26.38                      | 11.75                     | 19.07                  |
| Combolcha 1985 | 26.05                      | 5.59                      | 15.82                  |
| Combolcha 1990 | 26.50                      | 12.96                     | 19.73                  |
| Combolcha 1995 | 26.38                      | 12.60                     | 19.49                  |
| Combolcha 2000 | 26.80                      | 11.79                     | 19.30                  |
| Combolcha 2005 | 27.25                      | 12.20                     | 19.73                  |
| Combolcha 2010 | 27.49                      | 13.325                    | 20.40                  |
| Combolcha 2015 | 28.11                      | 12.85                     | 20.48                  |
Table 8
Variation of annual maximum and minimum temperature in Debre Markos (1955–2015). Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

| Year     | Average annual temp. (Max) | Average annual temp. (Min) | Mean annual temperature |
|----------|----------------------------|----------------------------|-------------------------|
| Debre Markos 1955 | 21.58                      | 8.90                       | 15.24                   |
| Debre Markos 1960 | 22.25                      | 8.15                       | 15.20                   |
| Debre Markos 1965 | 21.98                      | 8.58                       | 15.28                   |
| Debre Markos 1970 | 22.96                      | 9.94                       | 16.45                   |
| Debre Markos 1975 | 22.40                      | 9.12                       | 15.76                   |
| Debre Markos 1980 | 22.45                      | 10.00                      | 16.22                   |
| Debre Markos 1985 | 21.90                      | 10.21                      | 16.06                   |
| Debre Markos 1990 | 22.57                      | 9.51                       | 16.04                   |
| Debre Markos 1995 | 23.34                      | 10.56                      | 16.95                   |
| Debre Markos 2000 | 22.60                      | 10.09                      | 16.35                   |
| Debre Markos 2005 | 23.05                      | 10.60                      | 16.83                   |
| Debre Markos 2010 | 23.05                      | 11.12                      | 17.09                   |
| Debre Markos 2015 | 23.56                      | 11.18                      | 17.37                   |

Table 9
Variation of annual maximum and minimum temperature in Dire Dawa (1952–2015). Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

| Year     | Average annual temp. (Max) | Average annual temp. (Min) | Mean annual temperature |
|----------|----------------------------|----------------------------|-------------------------|
| Dire Dawa 1952 | 32.58                      | 12.56                      | 22.57                   |
| Dire Dawa 1955 | 31.69                      | 18.03                      | 24.86                   |
| Dire Dawa 1960 | 31.26                      | 18.68                      | 24.97                   |
| Dire Dawa 1965 | 31.22                      | 18.19                      | 24.70                   |
| Dire Dawa 1970 | 31.07                      | 18.79                      | 24.93                   |
| Dire Dawa 1975 | 31.26                      | 18.79                      | 25.02                   |
| Dire Dawa 1980 | 31.20                      | 19.60                      | 25.40                   |
| Dire Dawa 1985 | 31.21                      | 19.14                      | 25.17                   |
| Dire Dawa 1990 | 31.45                      | 19.30                      | 25.37                   |
| Dire Dawa 1995 | 32.36                      | 19.33                      | 25.85                   |
| Dire Dawa 2000 | 32.58                      | 18.79                      | 25.68                   |
| Dire Dawa 2005 | 32.93                      | 19.19                      | 26.06                   |
| Dire Dawa 2010 | 32.65                      | 19.15                      | 25.90                   |
| Dire Dawa 2015 | 33.00                      | 18.43                      | 25.71                   |

Table 10
Variation of annual maximum and minimum temperature in Gode (1966–2015). Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

| Year     | Average annual temp. (Max) | Average annual temp. (Min) | Mean annual temperature |
|----------|----------------------------|----------------------------|-------------------------|
| Gode 1966 | 34.82                      | 21.14                      | 27.98                   |
| Gode 1970 | 35.00                      | 22.63                      | 28.82                   |
| Gode 1975 | 34.80                      | 22.93                      | 28.86                   |
| Gode 1980 | 34.39                      | 23.46                      | 28.92                   |
| Gode 1985 | 34.14                      | 21.95                      | 28.05                   |
| Gode 1990 | 34.62                      | 23.38                      | 29.00                   |
| Gode 2000 | 34.61                      | 23.20                      | 28.91                   |
| Gode 2005 | 35.21                      | 24.24                      | 29.72                   |
| Gode 2010 | 35.56                      | 24.51                      | 30.0                    |
| Gode 2015 | 35.31                      | 24.04                      | 29.67                   |
Table 11
Variation of annual maximum and minimum temperature in Gondar (1952–2015). Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

| Year | Average annual temp. (Max) | Average annual temp. (Min) | Mean annual temperature |
|------|-----------------------------|-----------------------------|-------------------------|
| Gondar 1952 | 25.65 | 11.90 | 18.77 |
| Gondar 1955 | 25.87 | 11.42 | 18.65 |
| Gondar 1960 | 25.46 | 11.28 | 18.37 |
| Gondar 1965 | 26.63 | 12.55 | 19.59 |
| Gondar 1970 | 27.04 | 12.76 | 19.90 |
| Gondar 1975 | 26.71 | 13.35 | 20.03 |
| Gondar 1980 | 26.55 | 13.40 | 19.97 |
| Gondar 1984 | 26.77 | 13.55 | 20.16 |
| Gondar 1990 | 26.7 | 12.32 | 19.54 |
| Gondar 1995 | 27.33 | 14.37 | 20.85 |
| Gondar 2000 | 27.30 | 11.58 | 19.44 |
| Gondar 2005 | 27.46 | 13.88 | 20.67 |
| Gondar 2010 | 28.00 | 13.45 | 20.73 |
| Gondar 2015 | 27.40 | 13.94 | 20.67 |

Table 12
Variation of annual maximum and minimum temperature in Gore (1952–2015). Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

| Year | Average annual temp. (Max) | Average annual temp. (Min) | Mean annual temperature |
|------|-----------------------------|-----------------------------|-------------------------|
| Gore 1952 | 22.16 | 12.56 | 17.36 |
| Gore 1955 | 22.79 | 12.90 | 17.85 |
| Gore 1960 | 23.40 | 12.94 | 18.17 |
| Gore 1965 | 22.35 | 13.11 | 17.73 |
| Gore 1970 | 23.41 | 13.06 | 18.24 |
| Gore 1975 | 22.67 | 13.14 | 17.90 |
| Gore 1980 | 23.44 | 13.77 | 18.60 |
| Gore 1985 | 22.50 | 13.70 | 18.10 |
| Gore 1990 | 25.20 | 14.70 | 19.95 |
| Gore 1995 | 24.56 | 13.78 | 19.17 |
| Gore 2000 | 24.01 | 13.64 | 18.82 |
| Gore 2005 | 24.50 | 14.62 | 19.56 |
| Gore 2010 | 24.20 | 14.65 | 19.42 |
| Gore 2015 | 24.60 | 14.12 | 19.36 |

Table 13
Variation of annual maximum and minimum temperature in Hawassa (1975–2015). Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

| Year | Average annual temp. (Max) | Average annual temp. (Min) | Mean annual temperature |
|------|-----------------------------|-----------------------------|-------------------------|
| Hawassa 1975 | 25.79 | 11.57 | 18.68 |
| Hawassa 1980 | 27.18 | 12.61 | 19.90 |
| Hawassa 1985 | 26.42 | 11.05 | 18.74 |
| Hawassa 1990 | 27.21 | 12.30 | 19.76 |
| Hawassa 1995 | 27.86 | 12.55 | 20.20 |
| Hawassa 2000 | 27.35 | 12.41 | 19.88 |
| Hawassa 2005 | 27.61 | 12.81 | 20.21 |
| Hawassa 2010 | 27.05 | 14.20 | 20.62 |
| Hawassa 2015 | 28.54 | 14.35 | 21.44 |
Table 14
Variation of annual maximum and minimum temperature in Jimma (1952–2015). Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

| Year | Average annual temp. (Max) | Average annual temp. (Min) | Mean annual temperature |
|------|-----------------------------|-----------------------------|-------------------------|
| Jimma | 1952 | 25.76 | 11.25 | 18.50 |
| Jimma | 1955 | 26.95 | 10.12 | 18.54 |
| Jimma | 1960 | 28.28 | 10.33 | 19.30 |
| Jimma | 1965 | 26.69 | 10.95 | 18.82 |
| Jimma | 1970 | 26.18 | 11.28 | 18.73 |
| Jimma | 1975 | 26.39 | 10.81 | 18.60 |
| Jimma | 1980 | 27.18 | 11.20 | 19.19 |
| Jimma | 1985 | 26.97 | 10.69 | 18.83 |
| Jimma | 1990 | 26.52 | 11.50 | 19.01 |
| Jimma | 1995 | 28.05 | 11.83 | 19.94 |
| Jimma | 2000 | 28.62 | 10.95 | 19.79 |
| Jimma | 2005 | 27.90 | 11.31 | 19.60 |
| Jimma | 2010 | 27.37 | 12.91 | 20.14 |
| Jimma | 2015 | 28.54 | 12.32 | 20.43 |

Table 15
Variation of annual maximum and minimum temperature in Mekele (1960–2015). Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

| Year | Average annual temp. (Max) | Average annual temp. (Min) | Mean annual temperature |
|------|-----------------------------|-----------------------------|-------------------------|
| Mekele | 1960 | 24.38 | 10.87 | 17.62 |
| Mekele | 1965 | 25.53 | 11.60 | 18.57 |
| Mekele | 1970 | 25.67 | 11.60 | 18.63 |
| Mekele | 1975 | 22.56 | 11.41 | 16.99 |
| Mekele | 1980 | 24.21 | 11.11 | 17.66 |
| Mekele | 1985 | 24.12 | 10.30 | 17.21 |
| Mekele | 1990 | 22.40 | 11.20 | 17.20 |
| Mekele | 1995 | 23.93 | 11.83 | 17.88 |
| Mekele | 2000 | 24.46 | 11.85 | 18.15 |
| Mekele | 2005 | 24.50 | 11.52 | 18.01 |
| Mekele | 2010 | 24.45 | 12.00 | 18.23 |
| Mekele | 2015 | 24.58 | 11.88 | 18.23 |

Table 16
Variation of annual maximum and minimum temperature in Metehara (1985–2015). Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

| Year | Average annual temp. (Max) | Average annual temp. (Min) | Mean annual temperature |
|------|-----------------------------|-----------------------------|-------------------------|
| Metehara | 1985 | 33.27 | 16.50 | 24.89 |
| Metehara | 1990 | 32.97 | 17.76 | 25.37 |
| Metehara | 1995 | 33.80 | 18.55 | 26.17 |
| Metehara | 2000 | 33.62 | 17.21 | 25.42 |
| Metehara | 2005 | 34.06 | 17.80 | 25.93 |
| Metehara | 2010 | 33.82 | 18.32 | 26.07 |
| Metehara | 2015 | 35.19 | 18.58 | 26.88 |
Table 17
Variation of annual maximum and minimum temperature in Neghele (1952–2015). Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

| Year  | Average annual temp. (Max) | Average annual temp. (Min) | Mean annual temperature |
|-------|---------------------------|---------------------------|------------------------|
| Neghele 1952 | 25.10                      | 12.22                     | 18.66                   |
| Neghele 1955 | 24.88                      | 11.87                     | 18.37                   |
| Neghele 1960 | 25.67                      | 12.25                     | 19.11                   |
| Neghele 1965 | 25.97                      | 12.55                     | 19.33                   |
| Neghele 1970 | 25.31                      | 13.65                     | 19.38                   |
| Neghele 1975 | 25.35                      | 12.99                     | 19.17                   |
| Neghele 1980 | 27.08                      | 13.01                     | 20.05                   |
| Neghele 1985 | 25.03                      | 13.22                     | 19.12                   |
| Neghele 1990 | 27.46                      | 15.01                     | 21.23                   |
| Neghele 1995 | 26.35                      | 15.89                     | 21.12                   |
| Neghele 2000 | 26.64                      | 14.86                     | 20.75                   |
| Neghele 2005 | 26.33                      | 16.24                     | 21.28                   |
| Neghele 2010 | 27.06                      | 16.46                     | 21.76                   |
| Neghele 2015 | 28.22                      | 16.66                     | 22.44                   |

Table 18
Variation of annual maximum and minimum temperature in Nekemte (1970–2015). Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

| Year  | Average annual temp. (Max) | Average annual temp. (Min) | Mean annual temperature |
|-------|---------------------------|---------------------------|------------------------|
| Nekemte 1970 | 24.00                      | 10.50                     | 17.25                   |
| Nekemte 1975 | 23.15                      | 10.97                     | 17.06                   |
| Nekemte 1980 | 23.48                      | 12.65                     | 18.06                   |
| Nekemte 1985 | 23.18                      | 12.11                     | 17.65                   |
| Nekemte 1990 | 23.99                      | 13.03                     | 18.51                   |
| Nekemte 1995 | 24.35                      | 13.16                     | 18.75                   |
| Nekemte 2000 | 24.40                      | 12.80                     | 18.60                   |
| Nekemte 2005 | 24.87                      | 13.28                     | 19.00                   |
| Nekemte 2010 | 24.56                      | 13.41                     | 18.99                   |
| Nekemte 2015 | 24.15                      | 12.99                     | 18.57                   |

Table 19
Variation of annual maximum and minimum temperature in Robe (1962–2015). Source: Computed based on raw data from National Metrology Agency (NMA) of Ethiopia.

| Year  | Average annual temp. (Max) | Average annual temp. (Min) | Mean annual temperature |
|-------|---------------------------|---------------------------|------------------------|
| Robe 1962 | 19.65                      | 5.80                      | 12.72                   |
| Robe 1965 | 18.40                      | 5.97                      | 12.19                   |
| Robe 1970 | 19.40                      | 6.47                      | 12.93                   |
| Robe 1975 | 19.69                      | 5.95                      | 12.82                   |
| Robe 1980 | 21.45                      | 6.55                      | 14.00                   |
| Robe 1985 | 21.22                      | 9.01                      | 15.12                   |
| Robe 1990 | 21.61                      | 8.42                      | 15.02                   |
| Robe 1995 | 21.91                      | 7.95                      | 14.93                   |
| Robe 2000 | 21.99                      | 6.18                      | 14.08                   |
| Robe 2005 | 22.45                      | 7.95                      | 15.20                   |
| Robe 2010 | 21.85                      | 9.01                      | 15.43                   |
| Robe 2015 | 22.83                      | 8.60                      | 15.72                   |
Fig. 21. Area cultivated under improved seeds, local seeds and fertilizer for cereals only in Ethiopia. 
Source: Computed based on raw data from Central Statistical Agency (CSA) of Ethiopia.

![Graph showing improved seeds, local seeds, and fertilizer applied area in Ethiopia, 2004/05 to 2015/16.]

Fig. 22. Fertilizer applied area and types of fertilizer for cereals only in Ethiopia. 
Source: Computed based on raw data from Central Statistical Agency (CSA) of Ethiopia.

![Graph showing types of fertilizer and their application area in Ethiopia, 2004/05 to 2015/16.]
**Fig. 23.** Major crops production in Ethiopia (1994/95–2014/15).
Source: Computed based on raw data from Central Statistical Agency (CSA) of Ethiopia. Note: Grain refers to all cereals, pulses and oil seeds. 1 quintal = 100 kg.

**Fig. 24.** Consumer Price Index in Ethiopia.
Source: Computed based on raw data from Central Statistical Agency (CSA) of Ethiopia.
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Transparency document. Supplementary material

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