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THE TANZANIA METEOROLOGICAL AUTHORITY ACT,
(CAP. 157)

REGULATIONS

(Made under section 54)

TANZANIA METEOROLOGICAL AUTHORITY (METEOROLOGICAL SERVICES FOR
AGRICULTURE, CLIMATOLOGY, RESEARCH, ENVIRONMENT AND HYDROLOGY)
REGULATIONS, 2021

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PART I
PRELIMINARY PROVISIONS

- Citation 1. These Regulations may be cited as the Tanzania Meteorological Authority (Meteorological Services for Agriculture, Climatology, Research, Environment and Hydrology) Regulations, 2021.
- Application 2. These Regulations shall apply to the application of meteorological services for agriculture, climatology, research, environment and hydrology.
- Interpretation 3. In these Regulations, unless the context requires otherwise-
- Cap. 157 “Act” means the Tanzania Meteorological Authority Act;
“Authority” means the Tanzania Meteorological Authority established under section 4 of the Act;
“agriculture” means a collective term for field and garden crops, livestock and fish production;
"agricultural extension agents" means the persons specialized in a topic of agricultural science and animal science including agrometeorologists, agronomists, soil scientists, plant pathologists, entomologists, horticulturists, and specialists from agricultural extension, animal husbandry and plant breeding;

- “agricultural meteorological station” means a station that provides meteorological data for agricultural or biological purposes and makes other meteorological observations under the programmes of Agrometeorological Research Centres and other relevant organizations;
- "agrometeorological bulletin" means a text comprising meteorological formation preceded by an appropriate heading;
- "agrometeorological forecast" means a statement of expected meteorological conditions or weather elements that immediately affect farm planning or operations at particular space and time;
- "agrometeorological information" means meteorological report, analysis, forecast, and any other statement relating to existing or expected meteorological conditions;
- "agrometeorological report" means a statement of observed agrometeorological conditions related to a specified time and location;
- “climatological data” means various types of data instrumental, proxy, historical which constitute the major source of climate study and theory;
- “explanatory metadata” means the details and history of local conditions of the observing stations, instruments, operating procedures as well as information describing data sets and data processing algorithms and other factors pertinent to using and interpreting the data;
- “hydrometeorological stations” means meteorological stations making observations on meteorological elements for hydrological purposes;
- “meteorological elements” means any of the subjects of meteorological observations such as wind direction, air temperature, relative humidity, atmospheric pressure, sunshine hours, present weather and aerological soundings;
- “meteorological stations” means a facility, either fixed or mobile on land, sea or space with instruments to measure atmospheric conditions;

“meteorological observation” means evaluation of one or more meteorological elements;

“pollution of the sea” means the introduction of harmful substances resulting from human activity to the sea;

"severe weather warning" means the emergent announcement issued in the form of weather forecast to the public in the areas affected when severe weather of possible serious impacts on national economy and people's livelihood is imminent, such as tropical cyclone, cold spell, strong winds, heavy rain or snow, hail, etc.;

“tailor-made” means specialized meteorological services provided for agriculture sector, customer or clients; and

“user” means any agricultural decision maker such as a farmer, extension agent, Government official, media, person, researcher, or the general public.

PART II

METEOROLOGICAL SERVICES FOR AGRICULTURE

Establishment of
agro-
meteorological
station

4.-(1) A person who intends to establish a new or maintain existing agrometeorological station shall ensure that the station is adequate for the provision of the agrometeorological services.

(2) The agricultural meteorological station shall be located at a place that is representative of agricultural and natural conditions in the area concerned, namely-

(a) at experimental stations or research institutes for agriculture, horticulture, animal husbandry, forestry, and soil sciences;

(b) at agricultural and allied colleges;

(c) in areas of present or future importance for agricultural and animal husbandry;

(d) in forest areas;

(e) in national parks and reserves; and

(f) at any other place as the Authority may consider necessary for the purpose.

(3) The functions of agrometeorological stations

shall be-

- (a) to carry out observations of physical environment and biological nature;
- (b) to prepare various reports as necessary to meet the needs of agricultural operations and related research; and
- (c) to perform any other function which may support agricultural activity.

Observation and reporting of agrometeorological data

5.-(1) The observation and reporting of agrometeorological data of physical environment shall include-

- (a) temperature and humidity of the air at different levels in the layer adjacent to the ground, from ground level up to about 10 metres above the upper limit of prevailing vegetation, including extreme values of the meteorological elements;
- (b) soil temperature at depths of 5, 10, 20, 50 and 100 cm and at additional depths for special purposes and in forest areas;
- (c) soil water or volumetric content at various depths, with at least three replications when the gravimetric method is used;
- (d) turbulence and mixing of air in the lower layer including wind measurements at different levels;
- (e) hydrometeors and water-balance components including hail, dew, fog, evaporation from soil and from open water, transpiration from crops or plants;
- (f) sunshine, global and net radiation as well as the radiation balance over natural vegetation, and crops and soils over twenty four hours; and
- (g) observations of weather conditions producing direct damage to crops, such as frost, hail, drought, floods, gales and extremely hot dry winds.

(2) The following observations shall be of biological nature-

- (a) crop phenological phase for establishment of bioclimatic relationships;
- (b) observations on qualitative and quantitative yield of plant and animal products;
- (c) observations of direct weather damage on crops and animals such as adverse effects of frost, hail, drought, floods, gales;
- (d) observations of damage caused by diseases and pests; and
- (e) observations of damage caused by sandstorms and dust storms and atmospheric pollution, as well as forest, bush and grassland fires.

Publication of
agrometeorologi
cal data

6.-(1) An agrometeorological station operator may be required to periodically publish, agricultural meteorological data when the need for information is not met by other climatological publications and shall make such information available to the Authority.

(2) The published agricultural meteorological data shall include the following:

- (a) frequency, duration and threshold values of the different elements; and
- (b) mean values, and other statistical parameters including standard deviation, mean error, quintiles which are necessary for determining the probability of different values.

(3) The published soil-temperature data shall include information concerning-

- (a) soil type;
- (b) soil cover and surface management;
- (c) degree and direction of slope of ground; and
- (d) any other information related to soil temperature.

(4) The published soil-moisture data shall include the following information-

- (a) soil type;
- (b) soil cover;

- (c) physical constants of the soil, including bulk density, moisture content at field capacity and moisture content at permanent wilting point; and
- (d) any other information related to soil temperature.
- (5) The published potential or actual evapo-transpiration data shall include-
 - (a) short description of equipment or method used;
 - (b) type of soil in the area of observation; and
 - (c) vegetation cover and surrounding conditions.

Meteorological
forecast for
agriculture

7.-(1) A person who intends to carry out meteorological forecasts for agriculture shall be required to follow the forecasting programme for agricultural purposes, which include-

- (a) regular and detailed forecasts for agriculturists and foresters and seasonal to inter-annual predictions of the likelihood of climatic anomalies, including temperature, rainfall and other climate variables, specifying local variations in weather to the greatest possible extent;
- (b) forecasts related to the selection of the most favourable weather conditions for preparing the soil, planting, cultivating and harvesting crops, and for other agricultural operations;
- (c) forecasts for the control of crop and animal pests and diseases; and
- (d) warnings of hazardous weather conditions such as strong winds, hail, frost, droughts, floods, gales, waterspouts, and heavy rains.

(2) The person may provide tailored forecasting services relevant to animal husbandry and fisheries to be interpolated by experts in respective sector with the following general information for-

- (a) livestock-
 - (i) temperature;
 - (ii) humidity;

- (iii) solar radiation;
 - (iv) cloud cover;
 - (v) severe weather warnings including extreme temperatures, heavy rain, snow, hail;
 - (vi) flood warnings;
 - (vii) wind
 - (viii) drought;
 - (ix) soil temperatures; and
 - (x) evaporation indices.
- (b) fisheries-
- (i) severe weather warnings;
 - (ii) wind speed and wind direction;
 - (iii) rainfall;
 - (iv) temperature;
 - (v) evaporation indices;
 - (vi) drought warnings;
 - (vii) tidal heights; and
 - (viii) wave height.

Preparation of
agrometeorologi
cal information

8. A person involved in agricultural activity may, when requiring agrometeorological information, provide to the meteorological service provider information including-

- (a) present crop status detailing the types, state and phenological stage of crops;
- (b) infestations of pests and diseases and their severity;
- (c) other crop stresses such as nutrient stress, water stress and thermal stress; and
- (d) pasture conditions.

PART III METEOROLOGICAL SERVICES FOR CLIMATOLOGY OR RESEARCH

Collection,
maintenance
and transfer of
climatological
data

9.-(1) A person who carries out climatological activity shall transmit data to the national meteorological databank after the end of the month and not later than the fifth day of the following month.

(2) A person involved in climatological data collection shall be required to provide a comprehensive metadata to enable access, retrieval and use of data without ambiguity or uncertainty.

Meteorological services for research

10.-(1) A person conducting research shall use meteorological services for the following:

- (a) conducting environmental and climate related research;
- (b) research activities in relation to policy designing and formulation;
- (c) climate change researches and studies;
- (d) case studies on extreme weather events;
- (e) researches that leads to make proper decision for socio economic planning; and
- (f) any other related research activity.

(2) Subject to subregulation (1), a person who intends to conduct research related to meteorology shall bear the cost of data, consultancy or technical advices provided for under the Schedule to these Regulations.

Case studies on extreme weather events

11. Where appropriate, any agrometeorological station operator may carry out case studies on significant weather events which shall assist in the important step of using research findings to improve operational activities and service delivery of meteorological services.

PART IV METEOROLOGICAL SERVICES FOR ENVIRONMENT

Meteorological services for environment

12. A person who intends to engage in environmental management activity shall use meteorological services on the following:

- (a) Environmental Impact Assessment and strategic environmental assessment;
- (b) pollution abatement;
- (c) waste disposal sites, management, and transport of waste;
- (d) management of deposition of particles from the manufacturing industries, including,

- fertilizer and cement;
- (e) oil spill management, including natural dispersal of the oil, and the direction that odours may travel; and
- (f) any other related activity.

**PART V
METEOROLOGICAL SERVICES FOR HYDROLOGY**

Collaboration
with
hydrological
service provider

13. A person who intends to engage in provision of hydrological service, shall be required to use meteorological services for-

- (a) management of dams and river flow discharge;
- (b) planning and management of water resources and basins; and
- (c) flood management.

**PART VI
GENERAL PROVISIONS**

General penalty

14. A person who contravenes a provision of these Regulations which no specific penalty has been provided for, commits an offence and upon conviction shall be liable to a fine of not less than one million shillings but not exceeding three million shillings or to imprisonment for a term of not less than six months but not exceeding twelve months or to both.

SCHEDULE

(Made under regulation 10(2))

CHARGES FOR DATA CONSULTANCY AND TECHNICAL ADVICES

Data Category	Number of years	Type of customer and cost for three meteorological parameters and one station		
		International Firm	Government institution/ Local Private Firm	Individual
Daily	1	374,400	220,800	169,600
	5	1,296,000	528,000	272,000
Monthly	1	163,200	86,400	60,800
	5	624,000	240,000	112,000
	10	1,200,000	432,000	176,000
Annual	1	28,800	25,600	24,533
	5	48,000	32,000	27,000
	10	72,000	40,000	29,333

NOTE: Where the number of years, parameters and stations requested by the customer are not indicated in the Schedule, computations shall be made.

Dodoma,
23th June, 2021

LEONARD M. CHAMURIHO
Minister for Works and Transport