

DECLARATION

I, hereby declare that this thesis entitled “**CLIMATE CHANGE IMPACT ON OPERATION POLICY AND PERFORMANCE INDICES OF A RESERVOIR USING MACHINE LEARNING TECHNIQUES**” is a bonafide record of work done by me during the course of project work and that it has not previously formed the basis for the award to me for any degree/diploma, associateship, fellowship or other similar title of any other University or Society.

Place: Tavanur

Date:

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(2020-28-002)

CERTIFICATE

Certified that this thesis entitled “**CLIMATE CHANGE IMPACT ON OPERATION POLICY AND PERFORMANCE INDICES OF A RESERVOIR USING MACHINE LEARNING TECHNIQUES**” is a record of project work done independently by **Er. Vinnakota Yesubabu** under my guidance and supervision and that it has not previously formed the basis for the award of any degree, fellowship or associateship to him.

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We, the undersigned members of the advisory committee of Er. Vinnakota Yesubabu (2020-28-002), a candidate for the degree of **Doctor of Philosophy in Agricultural Engineering** with major in Soil and Water Conservation Engineering, agree that the thesis entitled **“CLIMATE CHANGE IMPACT ON OPERATION POLICY AND PERFORMANCE INDICES OF A RESERVOIR USING MACHINE LEARNING TECHNIQUES”** may be submitted by **Er. Vinnakota Yesubabu (2020-28-002)**, in partial fulfilment of the requirement for the degree.

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SYMBOLS AND ABBREVIATIONS

%	:	Percentage
<	:	Less than
>	:	Greater than
Σ	:	Sum
$\leq$	:	Less than or equal to
$\geq$	:	Greater than or equal to
&	:	And
°C	:	Degree Celsius
AI	:	Artificial Intelligence
AOGCM	:	Atmospheric Ocean General Circulation Model
ANN	:	Artificial Neural Network
CMIP	:	Coupled Model Interpolation Project
CN	:	Curve Number
CP	:	Compromise Programming
DEM	:	Digital Elevation Model
ET	:	Evapotranspiration
<i>et al.</i>	:	and others
Fig.	:	Figure
GA	:	Genetic Algorithm
GCM	:	General Circulation Model/ Global Climate Model
Geo-HMS	:	Geospatial Hydrological Modelling System
GIS	:	Geographic Information System
ha	:	Hectare
HEC	:	Hydrologic Engineering Centre
HMS	:	Hydrological Modelling System
HSG	:	Hydrologic Soil Group
Int.	:	International
IHACRES	:	Identification of Unit Hydrograph and Component flows from Rainfall Evaporation and Streamflow data
IMD	:	Indian Meteorological Department

IPCC	:	Intergovernmental Panel on Climate Change
J.	:	Journal
Km ²	:	Square Kilometer
LBC	:	Left Bank Canal
LP	:	Linear Programming
MCM	:	Million Cubic Meter
MIP	:	Malampuzha Irrigation Project
ML	:	Machine Learning
MLR	:	Multiple Linear Regression
No.	:	Number
RBC	:	Right Bank Canal
RCP	:	Representative Concentration Pathways
RF	:	Random Forest
SSP	:	Shared Socioeconomic Pathways
SVM	:	Support Vector Machine
SWAT	:	Soil and Water Assessment Tool
USGS	:	United States Geological Survey
WANN	:	Wavelet coupled ANN
WCRP	:	World Climate Research program
WRF	:	Wavelet coupled RF
WSVM	:	Wavelet coupled SVM