List of students undertaking project work / field work / internship for academic year
2020 – 2021
B.E- GEOINFORMATICS DEPARTMENT

Sl.No.	Register No	Student name	YEAR	PROJECT WORK	MINI PROJECT	INTERNSHIP	FIELD WORK
1	712218135001	ABISHEK K R	IV	√	-	-	-
2	712218135002	ADESH K	IV	√	-	-	-
3	712218135003	NAVEEN Y	IV	√	-	-	-
4	712218135004	RAKSHANA S	IV	√	-	√	-
5	712218135005	RAVIN R	IV	√	-	-	-
6	712218135006	SARASHINYMOL Z	IV	√	-	√	-
7	712218135007	THUYAVAN K	IV	√	-	-	-

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STUDENTS PROJECT WORK DETAILS

CLASS IV/VIII semester   B.E GEOINFORMATICS DEPARTMENT

Sl.No.	REGISTER No	STUDENT NAME	GUIDE NAME	PROJECT TITIE & IN-HOUSE / INUSTRY PROJECT
1	712218135001	ABISHEK K R	R.A.MANOJ KUMAR	ANALYSIS OF LAND USE/LAND COVER CHANGES USING REMOTE SENSING DATA AND GIS FOR BANGALORE, INDIA
2	712218135002	ADESH K		
3	712218135005	RAVIN R		
4	712218135004	RAKSHANA S	DR.A. SELVARAJ	DECISION SUPPORT SYSTEM FOR FOREST FIRE AND RISK ANALYSIS USING REMOTES SENSING AND GIS
5	712218135006	SARASHINYMOL Z		
6	712218135003	NAVEEN Y	DR.A. SELVARAJ	MAPPING AND VEGETATION LOSS ASSESSMENT USING SENTINAL -1 IN GOOGLE EARTH ENGINE (GEE) PLATFORM: A CASE STUDY OF THE TAAL VOLCANO ERUPTION (2020) IN THE PHILIPPINES
7	712218135007	THUYAVAN K		
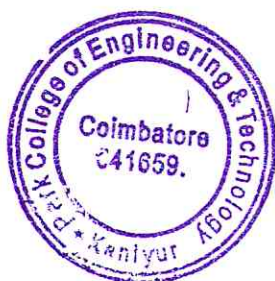
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DEPARTMENT OF GEOINFORMATICS ENGINEERING

Academic Year: 2021-2022(EVEN SEM)

STUDENTS INTERNSHIP DETAIL

S.NO	STUDENTS NAME	REG.NO	NAME OF THE COMPANY	ADDRESS	FROM TO	DURATION
1	RAKSHANA S	71221813500 4	DIGISAILOR	Ist Floor, SSM Jayam Tower, Teachers Colony, Tuticorin	01-09-2021 to 30-01-2021	1 Month
2	SARASHINY MOL Z	71221813500 6	DIGISAILOR	Ist Floor, SSM Jayam Tower, Teachers Colony, Tuticorin	01-09-2021 to 30-01-2021	1 Month

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PROJECT WORK

ANALYSIS OF LAND USE/LAND COVER CHANGES USING REMOTE SENSING DATA AND GIS FOR BANGALORE, INDIA

A PROJECT REPORT

Submitted by

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ADESH K (712218135002)

RAVIN R (712218135005)

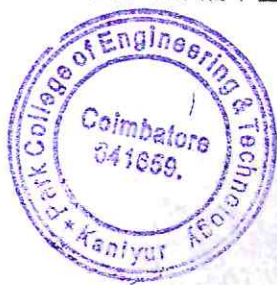*in partial fulfillment for the award of the degree*

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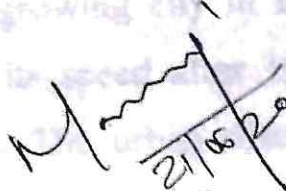
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JUNE 2022

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BONAFIDE CERTIFICATE

Certified that this project report **"LAND USE LAND COVER CHANGE DETECTION FOR BANGALORE URBAN DISTRICT"** is the bonafide work of **"ABISHEK KR (712218135001), ADESH K (712218135002), RAVIN R (712218135004)"** who carried out the project work under my supervision.
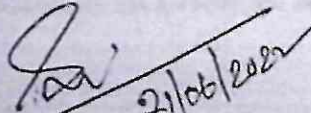
SIGNATURE 21/06/2022

Dr.A.SELVARAJ, M.Tech, Ph.D

HEAD OF THE DEPARTMENT

Department Of Geoinformatics

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Coimbatore - 641659
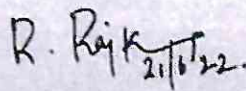
SIGNATURE 21/06/2022

Mr. R.A. MANOJ KUMAR, M.Tech

Assistant Professor

SUPERVISOR

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Coimbatore – 641659

Submitted for the VIVA-VOCE Examination held on ....21.06.2022..........

INTERNAL EXAMINER 21/06/2022

R. Raj 21/6'22.

EXTERNAL EXAMINER

ii

ANALYSIS OF LAND USE/LAND COVER CHANGES USING REMOTE SENSING DATA AND GIS FOR BANGALORE, INDIA

A PROJECT REPORT SUBMITTED BY

712218135001	ABISHEK K R
712218135002	ADESH K
712218135005	RAVIN R

ABSTRACT

Bangalore Urban District is one of the rapidly growing city in India as well as in Asia. The growth of Bangalore City took its speed after 1996-97, because of Real estate, Urbanisation and its policies. The urban district has 2196km2. The population of the study area crosses over 105 million in 2017. The population and city growth mainly affected the LULC of the Bangalore Urban District. Land use Land cover look like similar words but while studying deeply we can understand LULC concept easily. The major aim of the project is show the changes occur in the LULC of Bangalore Urban District using Remote Sensing and GIS technologies. And to understand past decades LULC of Bangalore Urban District.

Keywords: LULC, Bangalore Urban, Urbanisation.

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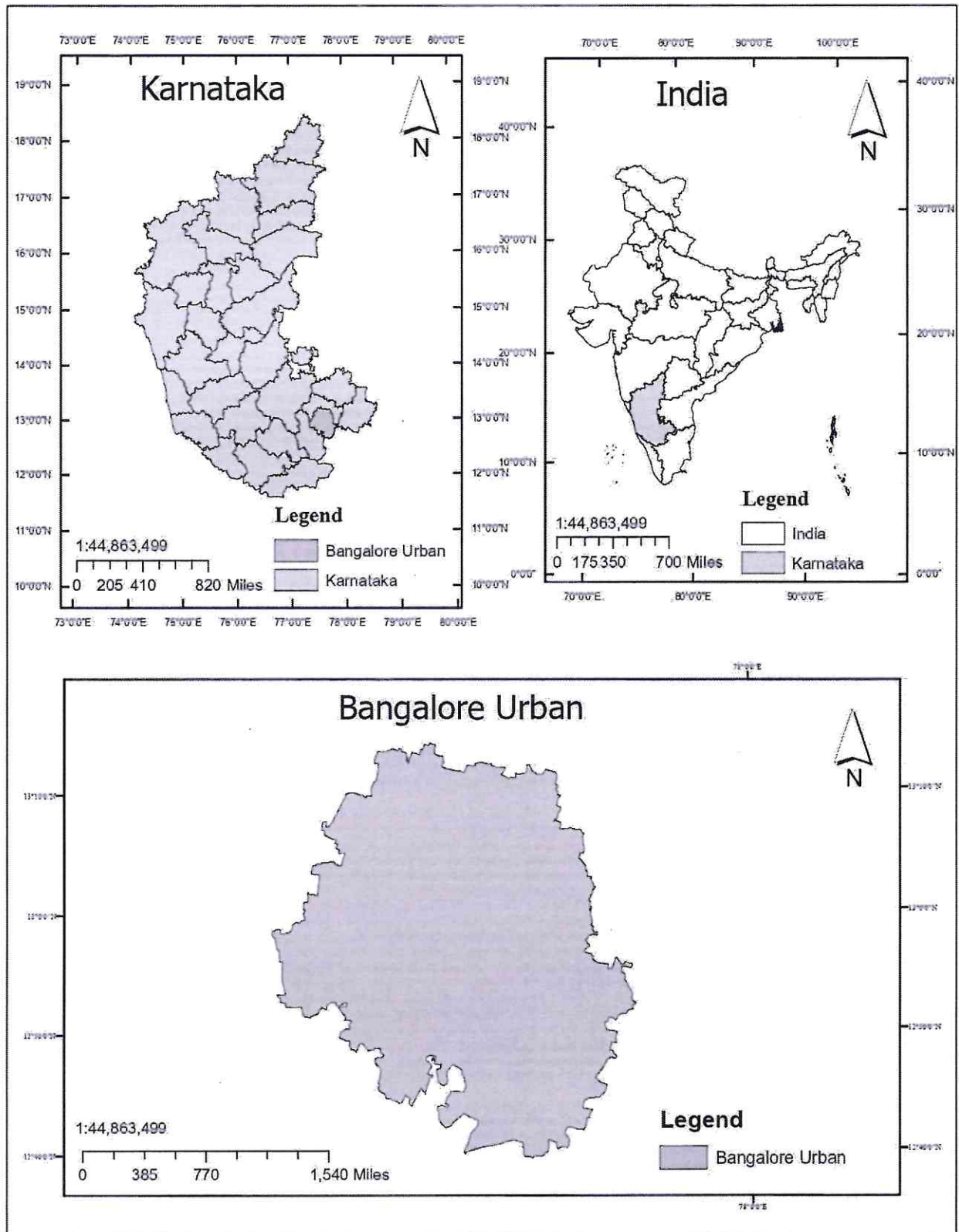Avinashi Road,
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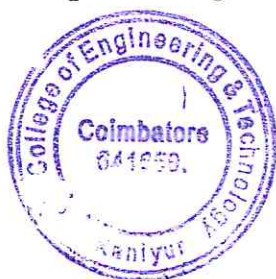
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Karnataka

Legend

1:44,863,499

0   205 410   820 Miles

Bangalore Urban
Karnataka

India

Legend

1:44,863,499

0   175 350   700 Miles

India
Karnataka

Bangalore Urban

Legend

1:44,863,499

0   385   770   1,540 Miles

Bangalore Urban

Map showing Bangalore Urban District

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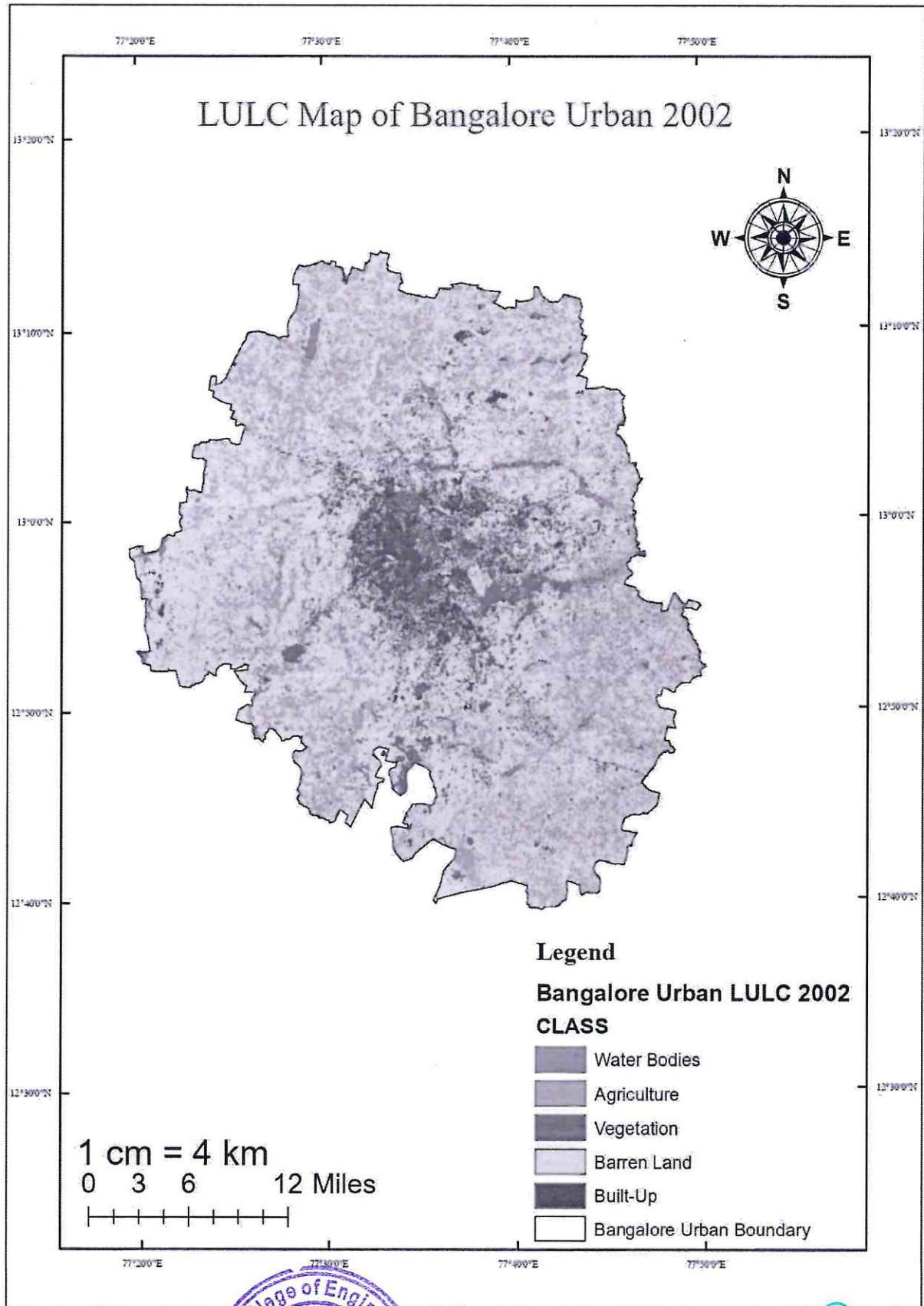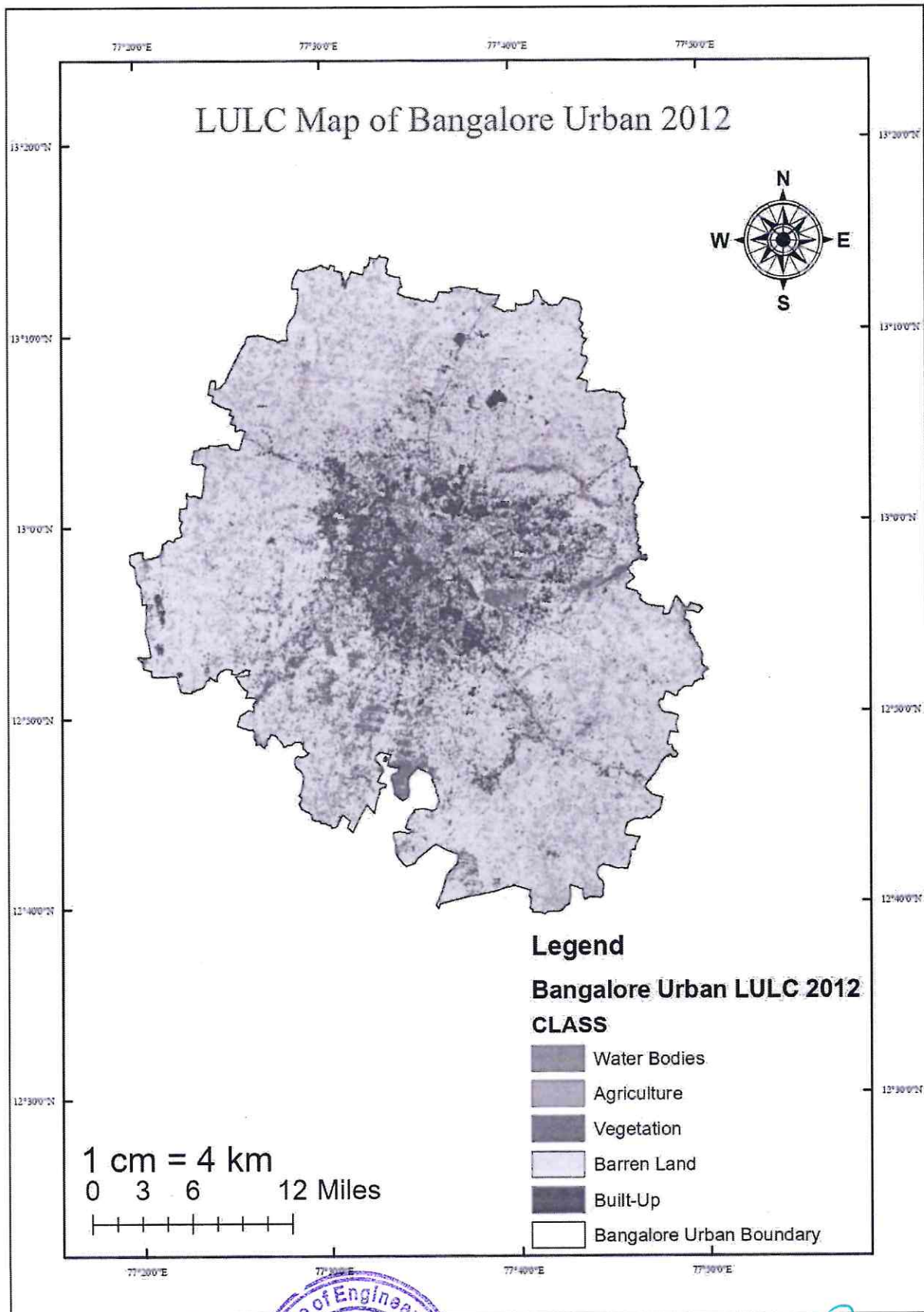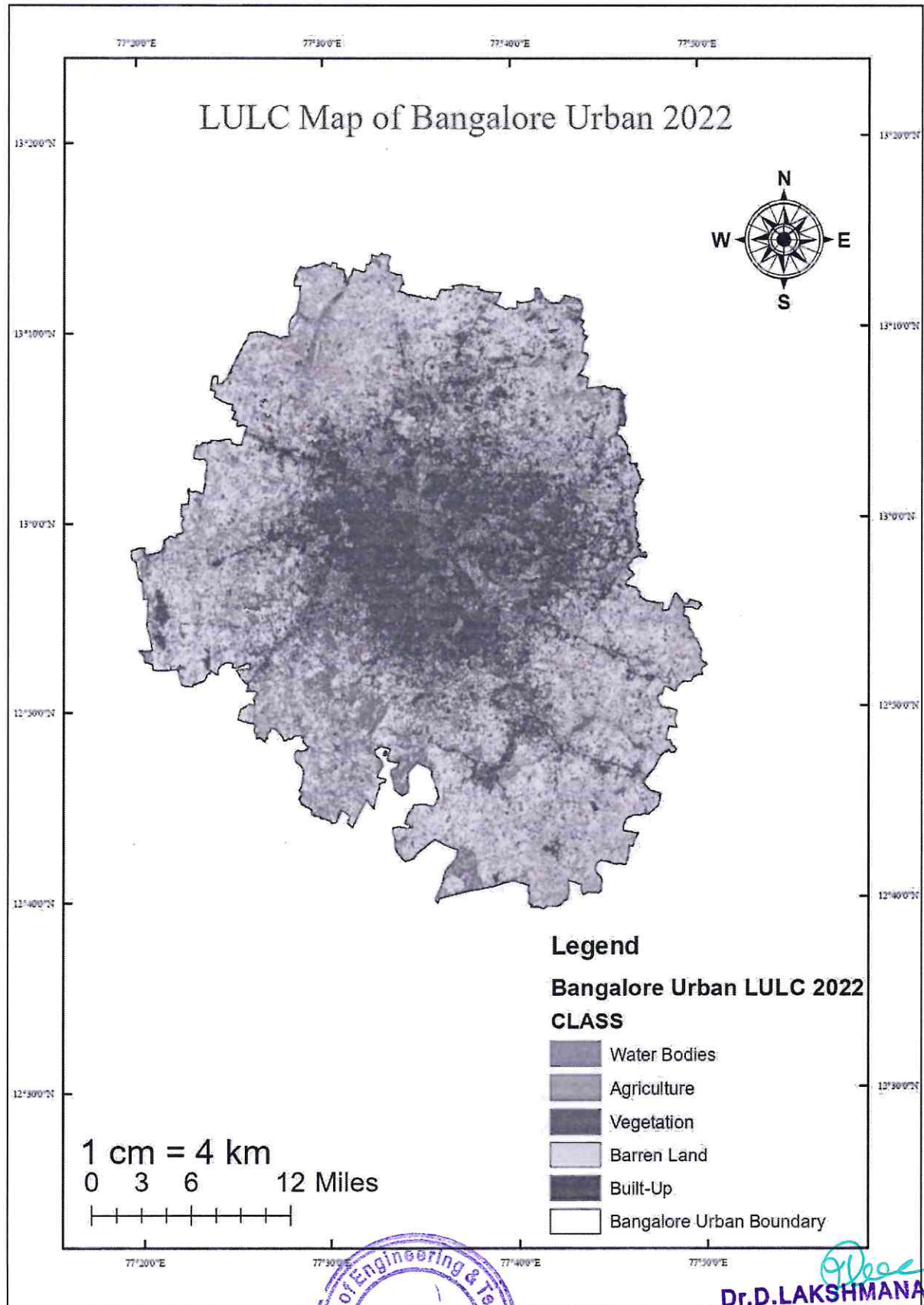Avinashi Road,
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LULC Map of Bangalore Urban 2002

Legend

Bangalore Urban LULC 2002
CLASS

- Water Bodies
- Agriculture
- Vegetation
- Barren Land
- Built-Up
- Bangalore Urban Boundary

1 cm = 4 km

0   3   6   12 Miles

Land Use Land Cover Map of Bangalore Urban District 2002

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LULC Map of Bangalore Urban 2012

Legend

Bangalore Urban LULC 2012

CLASS

	Water Bodies
	Agriculture
	Vegetation
	Barren Land
	Built-Up
	Bangalore Urban Boundary

1 cm = 4 km

0   3   6   12 Miles

Land Use Land Cover Map of Bangalore Urban District 2012

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LULC Map of Bangalore Urban 2022

Legend

Bangalore Urban LULC 2022

CLASS

- Water Bodies
- Agriculture
- Vegetation
- Barren Land
- Built-Up
- Bangalore Urban Boundary

1 cm = 4 km

0   3   6   12 Miles

Land Use Land Cover Map of Bangalore Urban District 2022

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CONCLUSION

The main objective of this project is to perform the Land Use Land Cover classification and change detection for Bangalore Urban district 2002 – 2012 – 2022. The supervised classification was performed using Non Parametric Rule. The image was classified into five classes.

For 2002 Agriculture (428.315333 sq.km), Water body (16.109472 sq.km), Built up areas (166.929651 sq.km), Vegetation (163.688993 sq.km) and Barren/bare land (1420.584444 sq.km).

For 2012 Agriculture (227.443343 sq.km), Water body (12.130729 sq.km), Built up areas (296.284642 sq.km) and Barren/bare land (1495.477745 sq.km).
For 2022 Agriculture (463.793463 sq.km), water body (20.116806 sq.km), Built up areas (690.83237 sq.km) and Barren/bare land(748.222154 sq.km). Barren Land and Built-Up was the dominant type of Land use classified which covers about 65.0% and 68% in 2002 and 2012 34% in 2022 of the total study.

The accelerated usage of remote sensing data and techniques has made geospatial process faster and powerful, although the increased complexity also creates increased possibilities for error. The objective of this paper was to classify and map land use - land cover (LULC) of the study area using Remote Sensing and GIS techniques and also to carry out accuracy assessment in order to assess how well a classification worked.

In addition classified image need to be assessed for accuracy, before the same could be used as input for any applications. Individual accuracy assessment parameters are useful to assess the model performance in respect of a particular category/class of specific interest for the study. In this study, accuracy assessment 54 was performed using error matrix. The study had an overall classification accuracy of 93%, 90%, 93% for 2022, 2012, 2002 and kappa coefficient of 0.91, 0.88, 0.91 for 2022, 2012 2002. The kappa coefficient is rated as substantial and hence the classified image found to be fit for further research.

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DECISION SUPPORT SYSTEM FOR FOREST FIRE AND RISK ANALYSIS USING REMOTE SENSING AND GIS

A PROJECT REPORT

Submitted by

RAKSHANA S (712218135004)

SARASHINYMOL Z (712218135006)

in partial fulfillment for the award of the degree
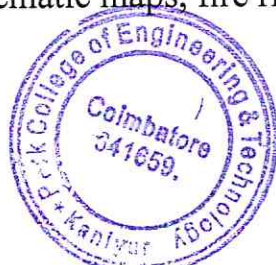
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in

GEOINFORMATICS ENGINEERING

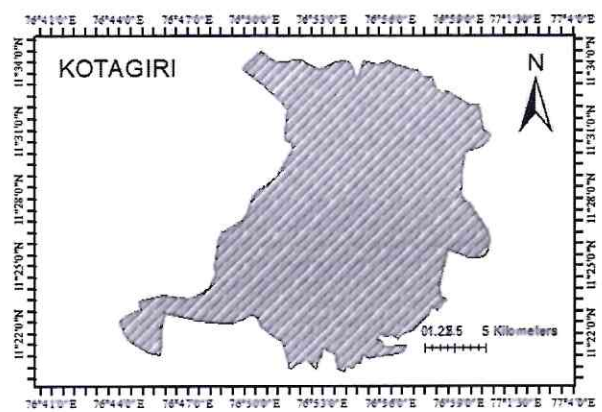**PARK COLLEGE OF ENGINEERING AND TECHNOLOGY**

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JUNE -2022

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ANNA UNIVERSITY::CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report **"Decision Support System For Forest Fire And Risk Analysis Using Remote Sensing And GIS"** is the bonafide work of **"RAKSHANA S (712218135004), SARASHINYMOL Z 712218135006)"** who carried out the project work under my supervision.

21/06/2022	*21/06/2022*
SIGNATURE	**SIGNATURE**
DR.A.SELVARAJ	DR.A.SELVARAJ
HEAD OF THE DEPARTMENT,	**SUPERVISOR,**
PROFESSOR,	PROFESSOR,
DEPARTMENT OF GEOINFORMATICS	DEPARTMENT OF GEOINFORMATIC
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AND TECHNOLOGY	AND TECHNOLOGY
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Submitted for the Project viva-voce examination held on 21.06.2022

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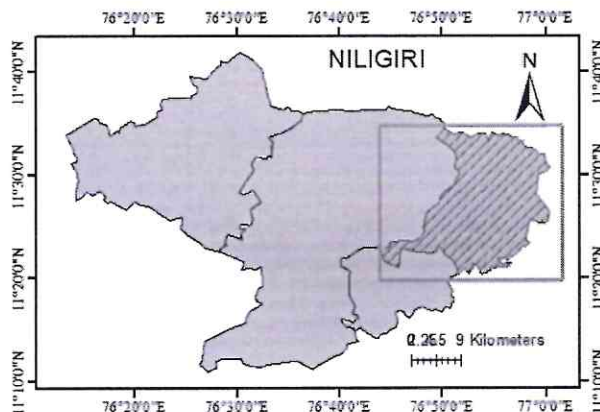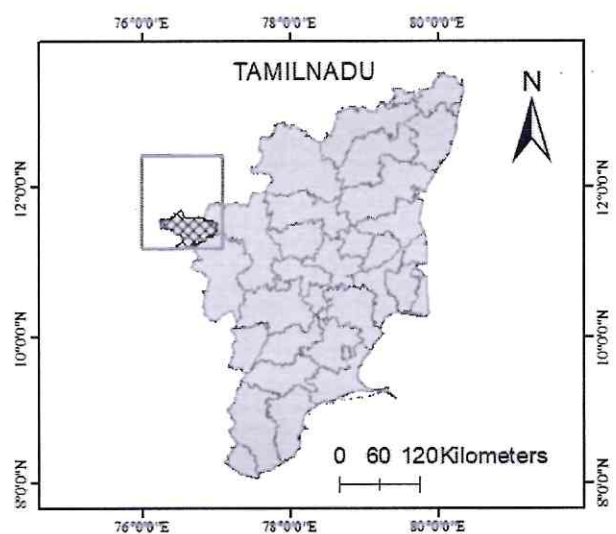Avinashi Road,
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21/06/2022	*R. Ray 21/6/22*
INTERNAL EXAMINER	**EXTERNAL EXAMINER**

DECISION SUPPORT SYSTEM FOR FOREST FIRE AND RISK ANALYSIS USING REMOTES SENSING AND GIS

A PROJECT REPORT SUBMITTED BY

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712218135006   SARASHINYMOL Z

ABSTRACT

Forest Fire can cause considerable environmental damage and brings about significant change in the ecosystem of a region. The selected study area, Kotagiri is prone to human induced forest fires either intentional or unintentional. The present study aims to demarcate forest fire risk zones of kotagiri, Tamil nadu using GIS and Remote Sensing techniques. Input maps like various thematic layers were used in present study such as landuse-landcover, aspect, slope, distance from road, distance from settlement and elevation. The risk zone map of the area of this study was created using the Fire Risk Index (FRI) which decided the degree of risk. In this regard, it has been classified into five fire risk zones, such as very low, low, moderate, high, and very high. The high and very high-risk zones together constituted 49.6 % of the study area. The validations of results are carried out using fire incidence data. This may reduce the frequency of forest fires in the future. This study are useful for all the authorities of the forest protection and conservation department to identify the fire risk zones more easily for the betterment of the forest in prevention of forest fire. All the implementation has been done using ArcGIS 10.8 version.

Keywords: Thematic maps, fire risk index (FRI) method, Human induced fire.

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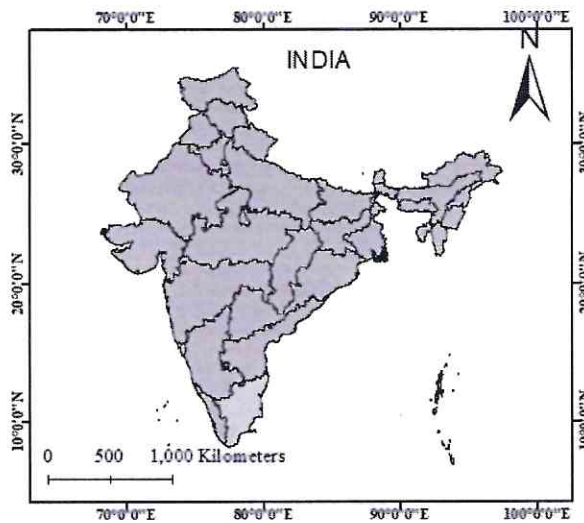Kaniyur, Coimbatore - 641659.

Study area

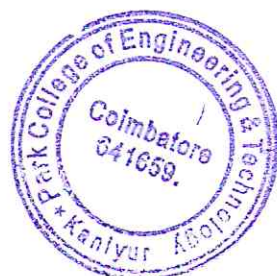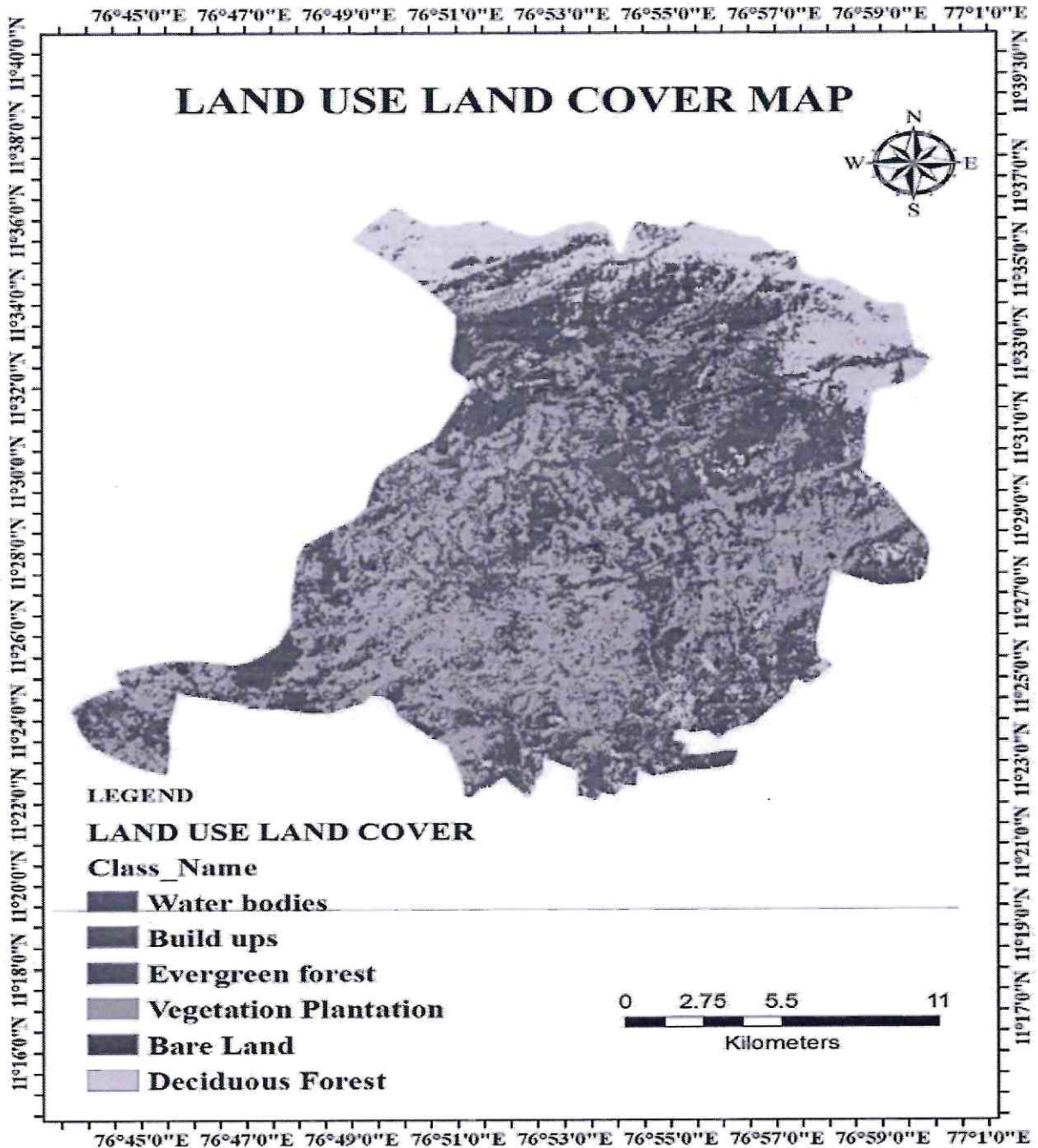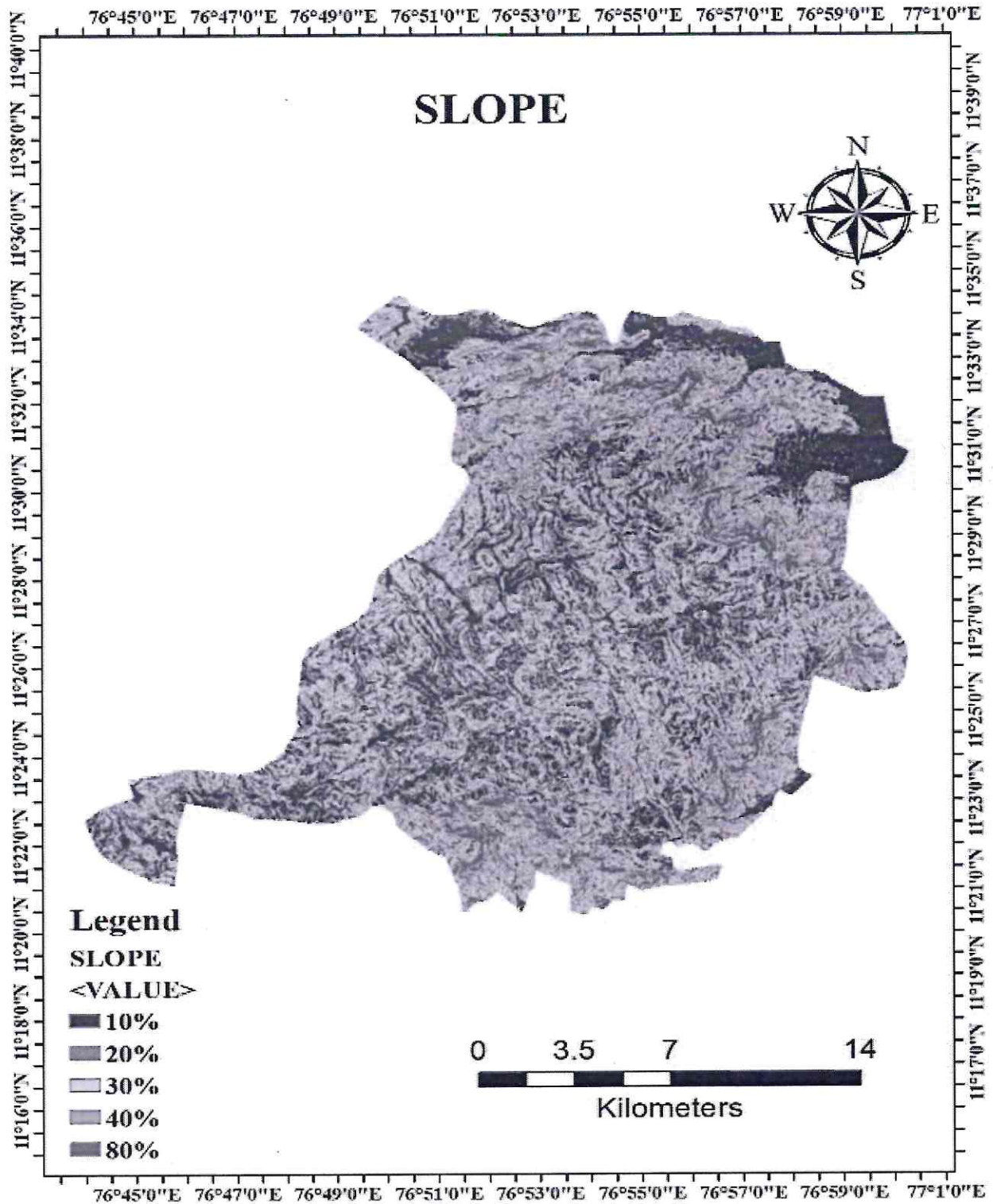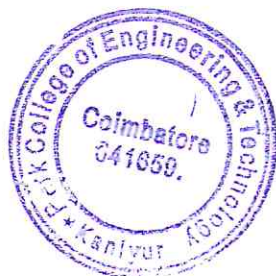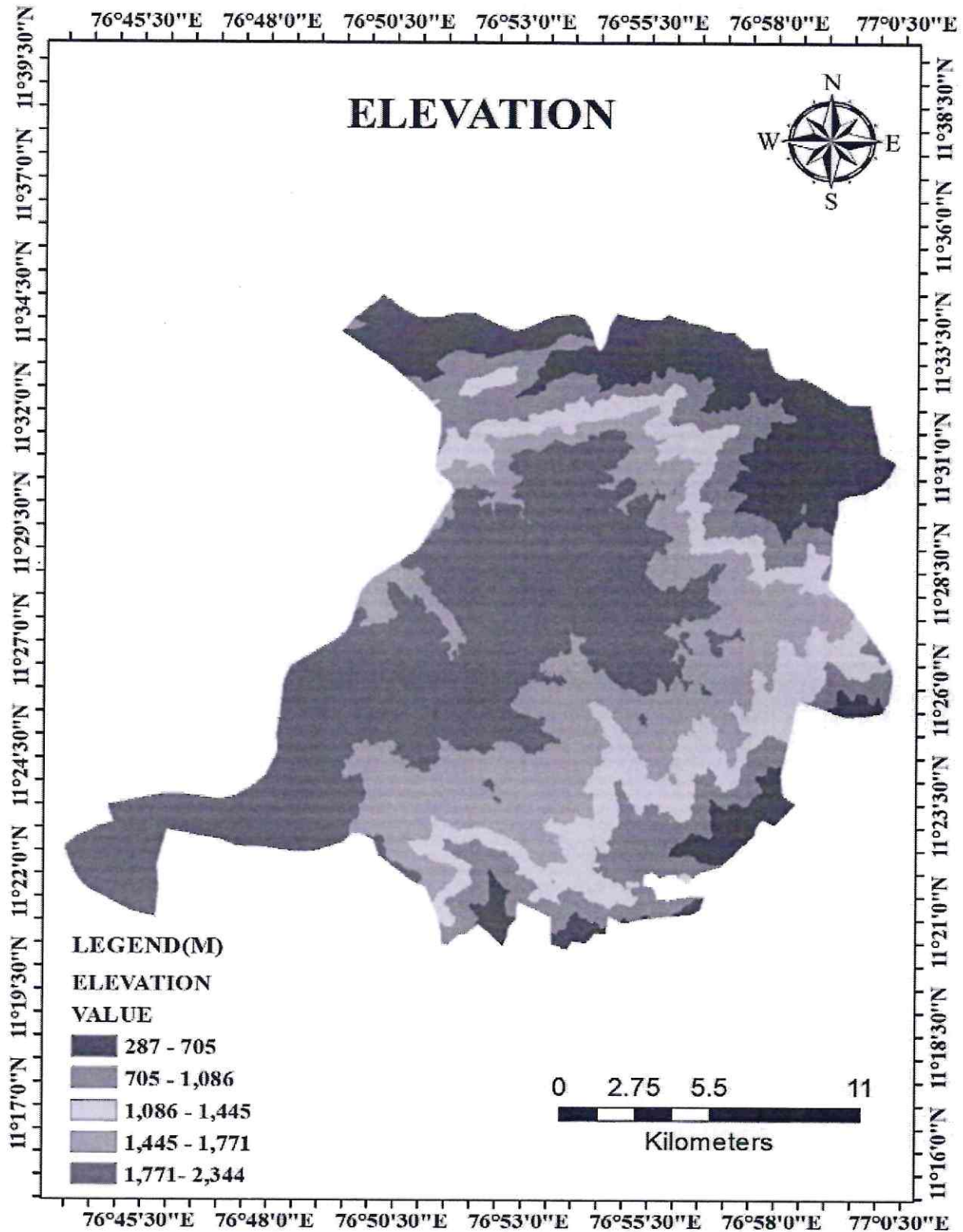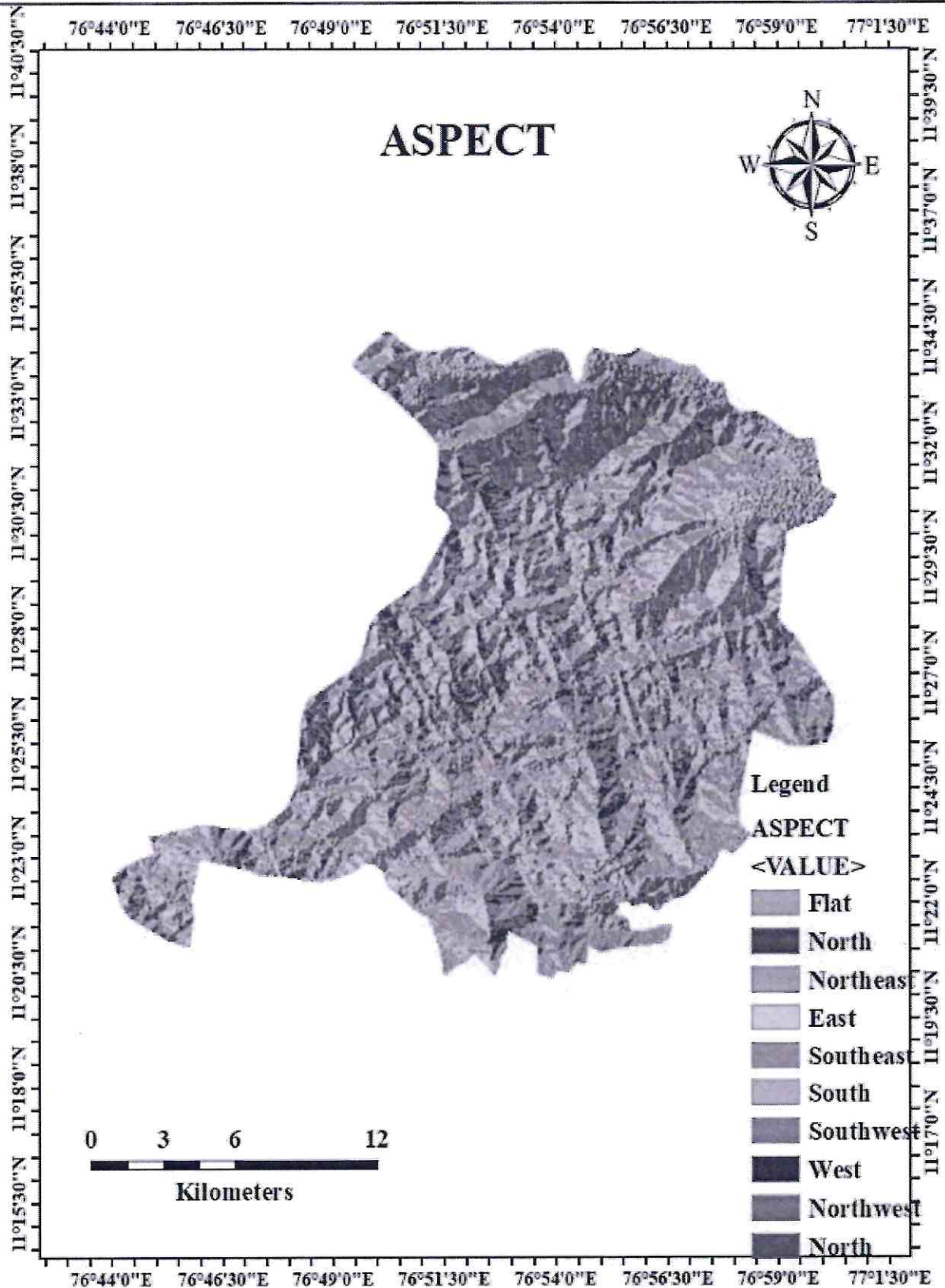PARK COLLEGE OF ENGINEERING AND TECHNOLOGY

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Email : info@park.ac.in *Web :* www.pcet.ac.in

Land use-land cover map

SLOPE

Legend

SLOPE

<VALUE>

- 10%
- 20%
- 30%
- 40%
- 80%

Slope map

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ELEVATION

LEGEND(M)

ELEVATION

VALUE

- 287 – 705
- 705 – 1,086
- 1,086 – 1,445
- 1,445 – 1,771
- 1,771 – 2,344

Elevation map

ASPECT

Legend

ASPECT

<VALUE>

Flat
North
Northeast
East
Southeast
South
Southwest
West
Northwest
North

0   3   6   12
Kilometers

Aspect map

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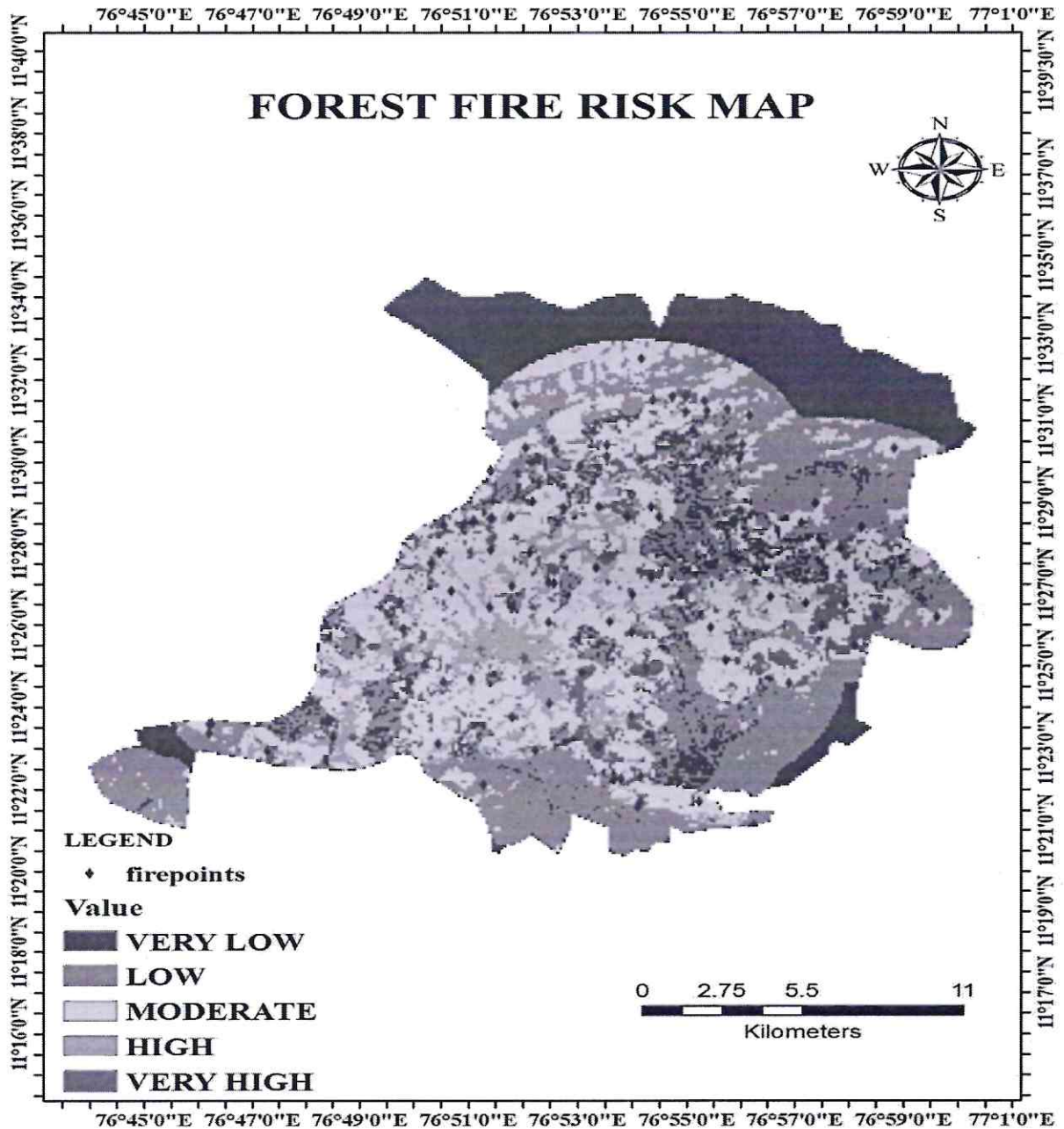Avinashi Road,
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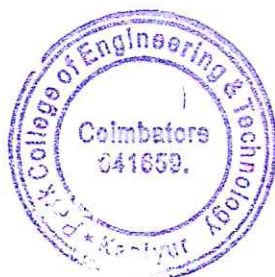PARK COLLEGE OF ENGINEERING AND TECHNOLOGY
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Email : info@park.ac.in Web : www.pcet.ac.in

Forest fire risk zone map

CONCLUSION

The incidence of forest fire depends on many factors, which play a significant role in the ignition and spread of forest fires. Therefore, the contribution of each parameter in analyzing the forest fires is not equal with the other ones because some parameters have higher influence on forest fires and they play more significant roles. For example, the land cover type with all its classes has a significant role in forest fire occurrence, compared to elevation, which has a lesser influence. A map representing the fire risk zones has been prepared using a method integrating RS and GIS techniques. The area of the risk zone map is categorized into five zones, they are very low, low, moderate, high, and very high. It is noted that 29.88% area of this forest division falls under "high" and "very high" fire risk zones. The final map is validated, which proves the reliability of this methodology.

This study confirms that most of the forest fires (76.84%) were recorded close to the roads. This suggests that the anthropogenic factors are the main reasons for the majority of the fires. The study shows that the methodology presented in this study, based on a combination of RS and GIS techniques, is a reliable approach and tool for the prevention and mitigation of forest fires. This may reduce the frequency of forest fires in the future. This study are useful for all the authorities of the forest protection and conservation department to identify the fire risk zones more easily for the betterment of the forest in prevention of forest fire.

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MAPPING AND VEGETATION LOSS ASSESSMENT USING SENTINEL-1 IN GOOGLE EARTH ENGINE (GEE) PLATFORM: A CASE STUDY OF THE TAAL VOLCANO ERUPTION (2020) IN THE PHILIPPINES

A PROJECT REPORT

Submitted by

NAVEEN Y (712218135003)

THUYAVAN K (712218135007)

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

in

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BONAFIDE CERTIFICATE

Certified that this project report "**Mapping and Vegetation Loss Assessment using Sentinel-1 in Google Earth Engine (GEE) platform: A case study of the Taal Volcano Eruption (2020) in the Philippines**" is the bonafide work of "**NAVEEN Y (712218135003), THUYAVAN K (712218135007)**" who carried out the project work under my supervision.
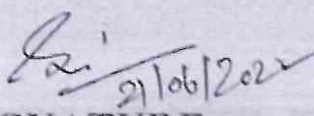
SIGNATURE

DR.A. SELVARAJ

HEAD OF THE DEPARTMENT,

PROFESSOR,

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PARK COLLEGE OF ENGINEERING

AND TECHNOLOGY

COIMBATORE-641659

SIGNATURE

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SUPERVISOR,

PROFESSOR,
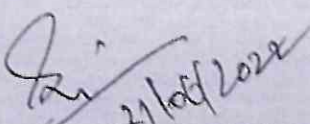
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INTERNAL EXAMINER

EXTERNAL EXAMINER

MAPPING AND VEGETATION LOSS ASSESSMENT USING SENTINAL - 1 IN GOOGLE EARTH ENGINE (GEE) PLATFORM: A CASE STUDY OF THE TAAL VOLCANO ERUPTION (2020) IN THE PHILIPPINES

A PROJECT REPORT SUBMITTED BY

712218135003	NAVEEN	Y
712218135007	THUYAVAN	K

ABSTRACT

The Philippines is one of the most vigorous zones in the world tectonically in which Taal volcano in Batangas is the second most erupting amid the 34 energetic volcanoes history in the Philippines. After 43 years, the Taal volcano was knocked up and emitted ash, lava, and gases into the air on January 12, 2020. The current eruption emerged as a layer of wet, causes intense ash on the surrounding landscape and damaged rice, corn, coffee cacao, and banana, and other vegetation. After disaster strikes and two months later, the ash-damaged island seems like the moon in a remote sensing image. This article investigates the SAR (Synthetic aperture radar) based mapping and assessment of vegetation loss before and after a volcano eruption. The sentinel-1 datasets spanning 2018–2020 have been exploited in the google earth engine cloud computing platform (GEE). The required sentinel time-series image collections were gathered and filtered appropriate datasets in the GEE platform. In this study, despite V.V. and V.H. polarization of Sentinel-1 extracted for 2018, 2019, and 2020, V.H. backscattering components are appropriate for assessing vegetation than V.V. components of SAR. The vegetation loss is determined by taking the 2018-2019 and 2019-2020 SAR images. The result shows that about 22294.89 Ha of vegetation was degraded in the year 2019-2020. In 2018-2019, there was 445.48 Ha of vegetation loss, which is a substantial vegetation reduction compared to 2018 and 2019. Hence, as a result, 98 % of vegetation reduction in the year 2019 and 2020 in Taal volcano in Batangas, Philippines.

Keywords: Taal volcano, GEE, Sentinel-1, Vegetation loss, SAR

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(Source:PHIVOLCS)

Location of Taal volcano in Batangas, Philippines

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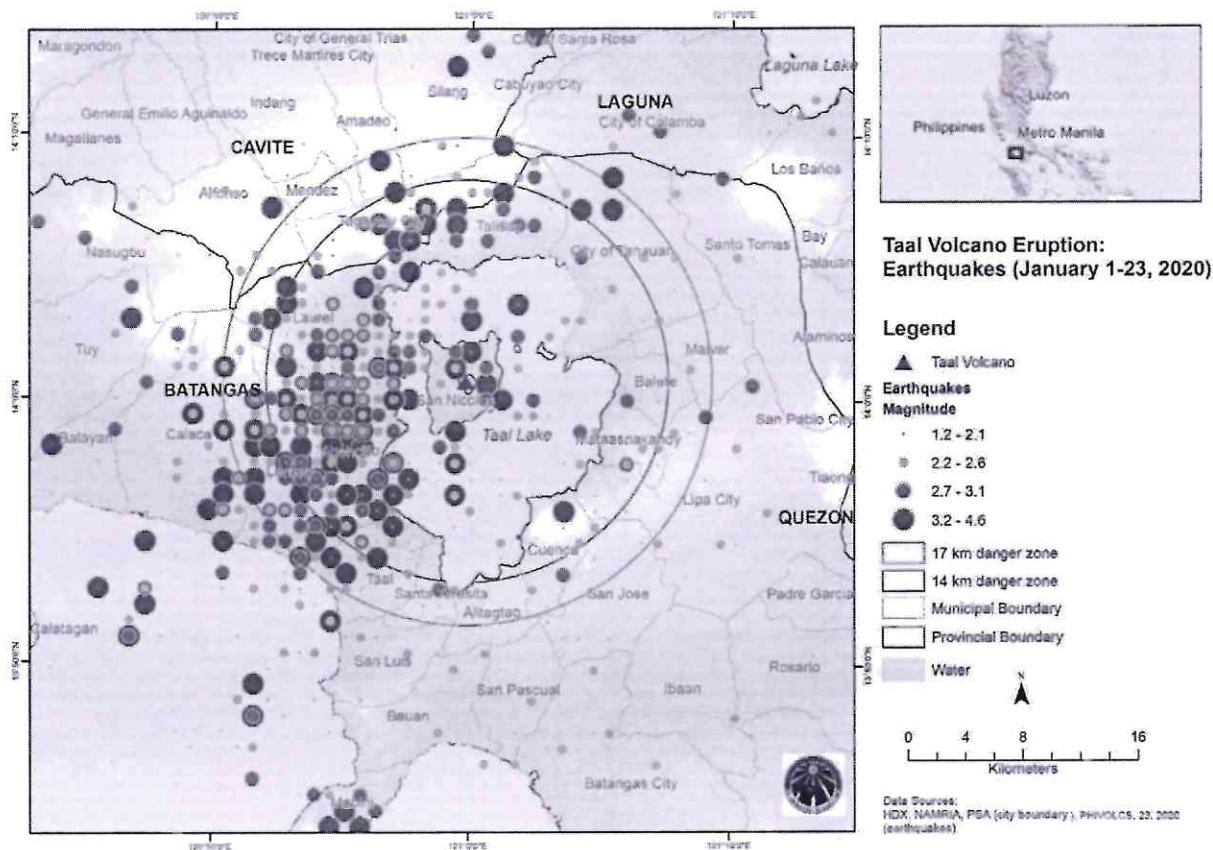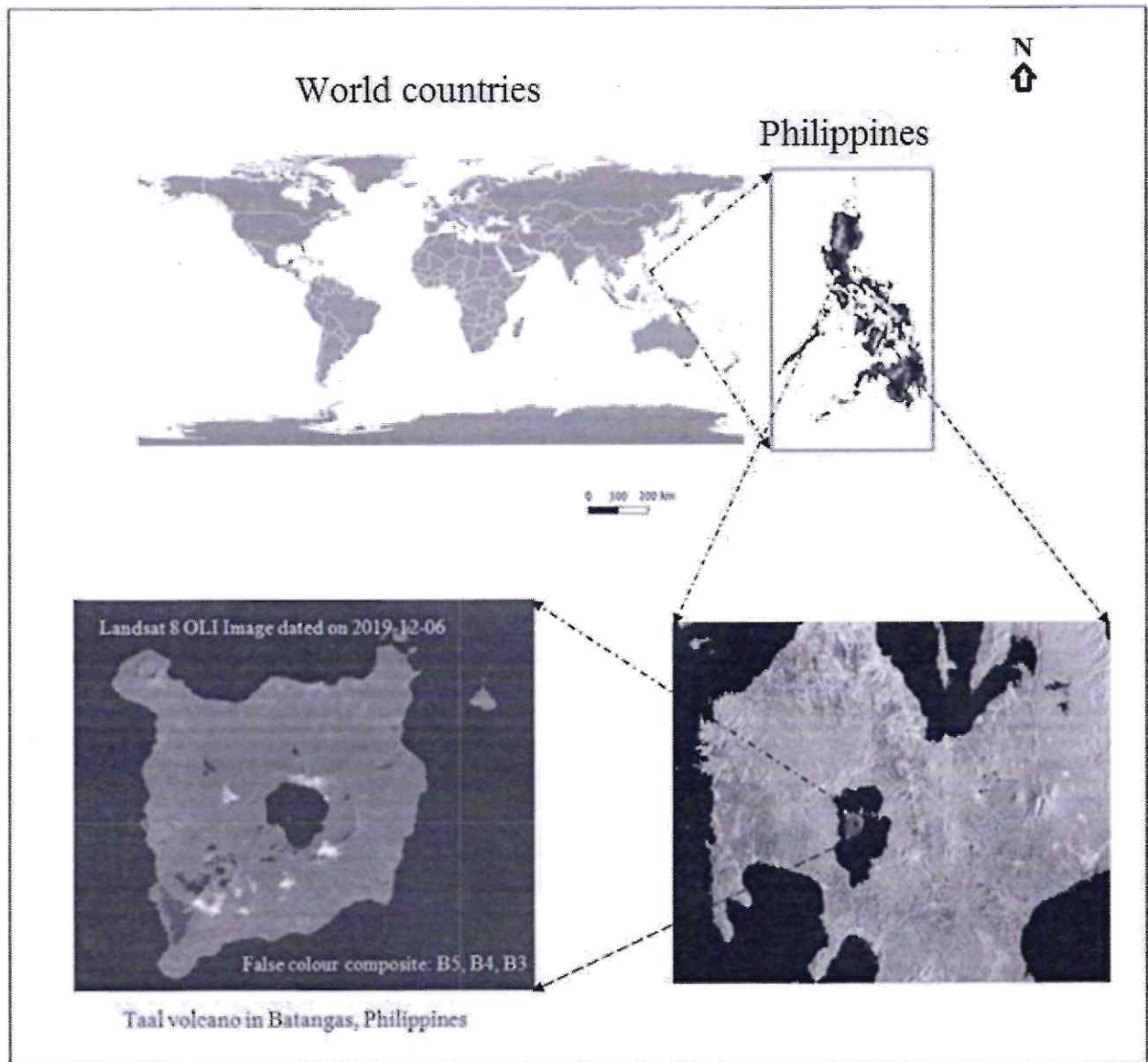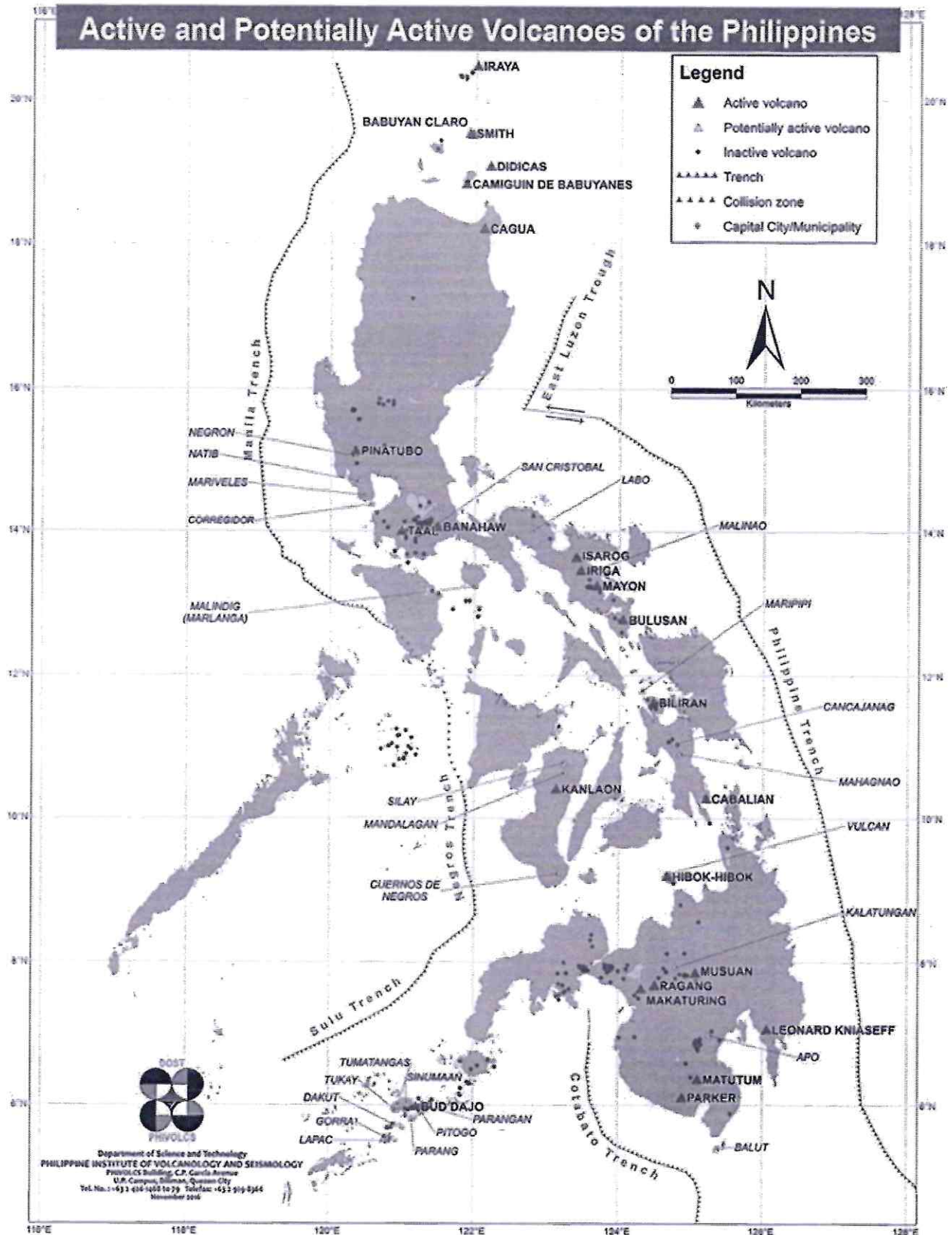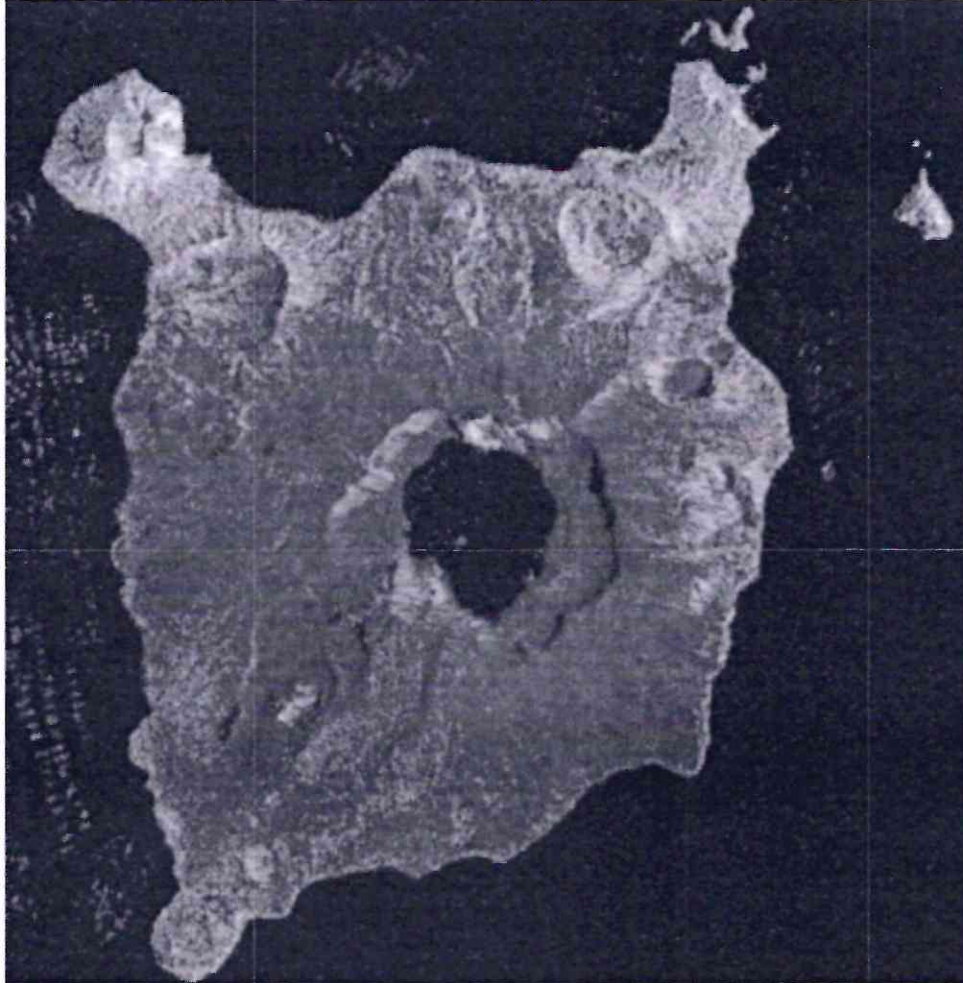Avinashi Road,
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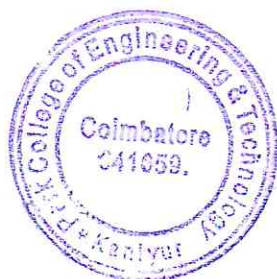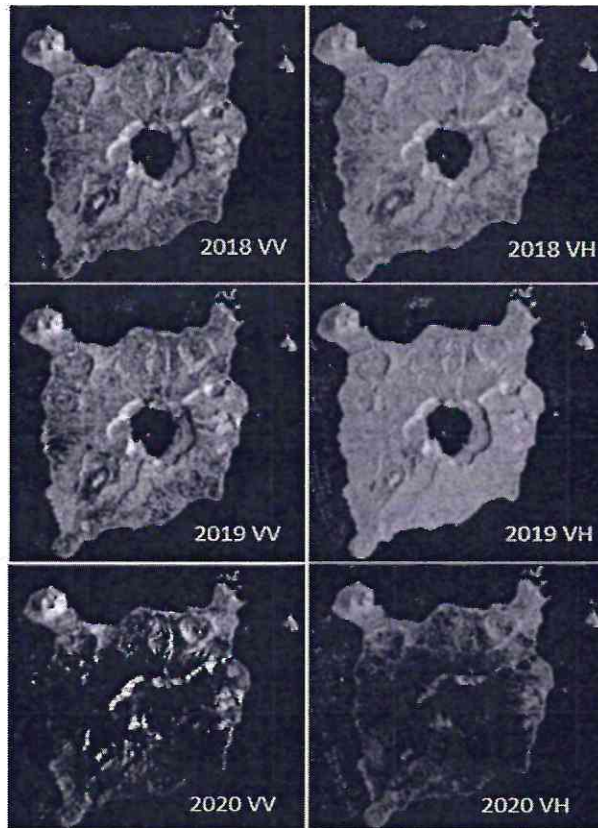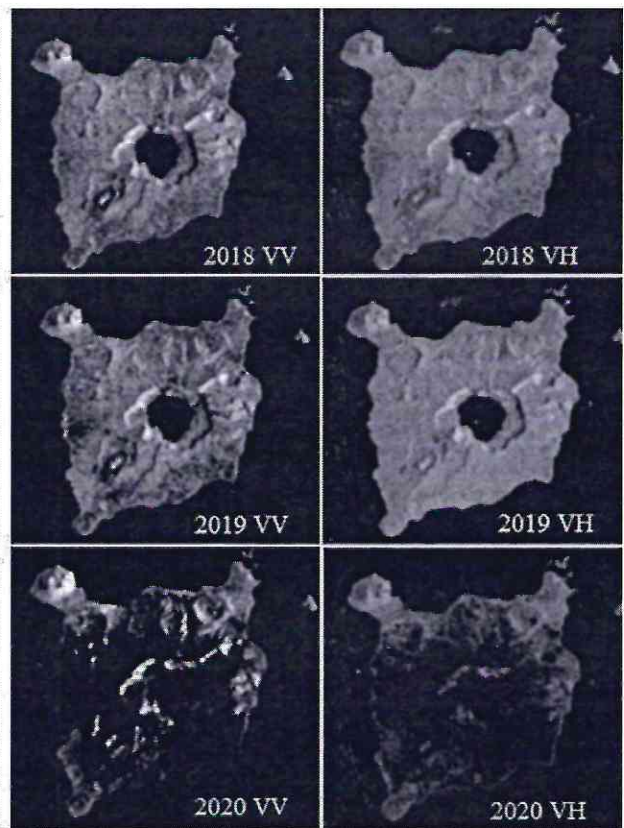NH 544, Avinashi Road, Kaniyur, Coimbatore – 641 659. Ph: 0421 2911200, 2910100
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Active and potentially active volcanoes in the Philippines

(Source: PHIVOLCS)

GEE JavaScript code for visualizing

RGB composite of the study area

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Output image of before and after application of speckle reduction
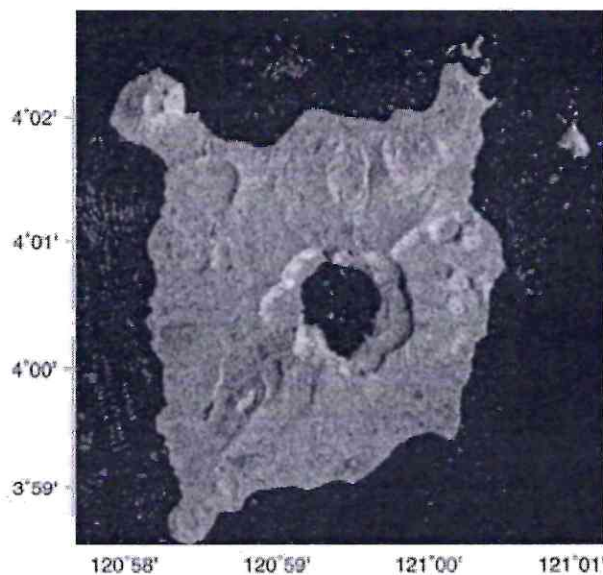
Vegetation loss in 2016-2018
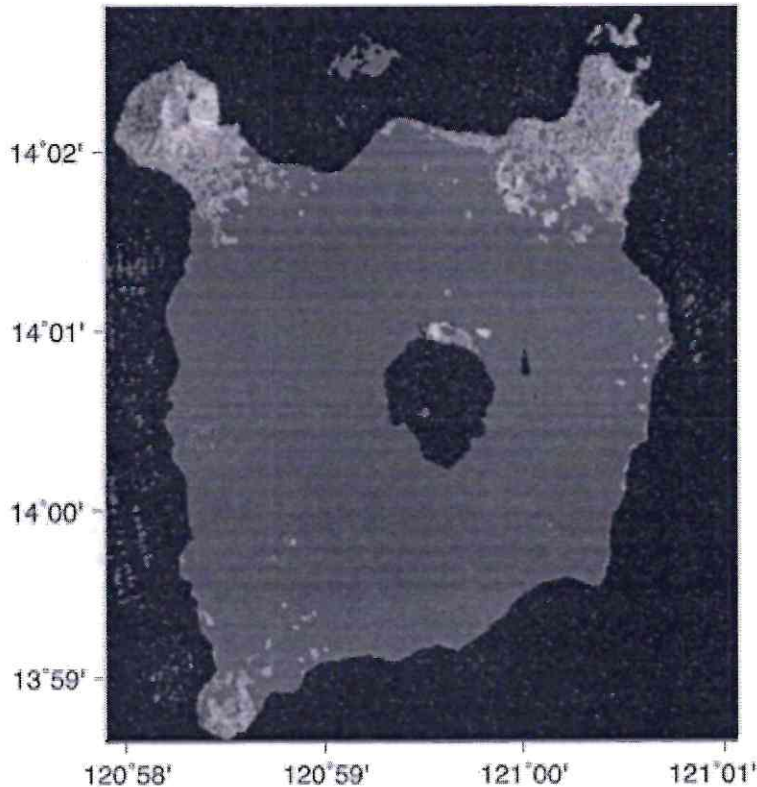
Vegetation loss in 2019-2020

CONCLUSIONS

The volcanic eruption of Taal Volcano in January 2020 caused severe vegetation loss around the lake have been mapped for areal assessment of eruption and vegetation loss. Google Earth Engine (GEE) was used to conduct the entire satellite image processing, as explained in the methodology. The final vegetation map derived after processing the sentinel-1SAR images is presented in Fig. 5.10 and 5.11. The area loss is from 222948.9 ha to 4454.8627 ha.

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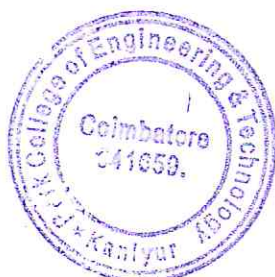*NH 544, Avinashi Road, Kaniyur, Coimbatore – 641 659. Ph: 0421 2911200, 2910100*
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During the above mentioned period she has worked on Tamilnadu Electricity Utility Mapping and we found her cooperative, hardworking and diligent.

We wish all the very best for her future endeavors.

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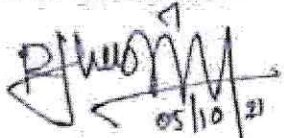
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