Capacity Building Workshop on Analytical Methods and Modelling in Geography

Department of Geography: Rajiv Gandhi University: Arunachal Pradesh

REPORT

Department of Geography, Rajiv Gandhi University conducted 10 days Capacity Building Workshop with sponsorship of ICSSR-NERC and RGU between 6th to 15th December 2017. Requirement of such a workshop was felt during framing of syllabus for undergraduate Geography programme. R G University authority approved the workshop. Accordingly proposal for financial support was sent to ICSSR-NERC in June 2017. ICSSR-NERC acknowledged the need of such a workshop and agreed for funding and sanctioned `75000/- on 10.07.2017. Rajiv Gandhi University extended a financial support of `30000/- to proceed with the workshop.

As the Summer vacation had elapsed by then it was decided to conduct the workshop in December 2017. Secretary, Department of Education and Director. Higher and Technical Education were approached for granting appropriate leave to the teachers of geography at colleges. A final Circular was issued in November 2017. Sixteen participants from twelve affiliated colleges one from R G University joined the workshop.

The Workshop started with a brief inaugural session on 6th December 2017 with Prof. A K Das, Senior Professor, Department of Botany as Chief Guest, Dean of Faculties of RGU, Registrar and Jt. Registrars of RGU, invited other Head of Departmemts of RGU, faculty members of the Department and participants from 12 affiliated colleges of RGU.

Workshop had both explanation and hands-on-practical session wherein all participants were given individual Desktop computers with LAN connectivity for accessing Reading Materials, Data, Freeware, Apps, etc. The workshop was has three sessions each, viz. morning I (09:30-11:15hrs), Morning II (11:30-13:30hrs) and afternoon (14:30-16:30hrs)

Resource persons from various Universities and Institute were invited to teach analytical methods and modelling in Geography.

Resource Person	Affiliation	Dates
Prof. Ramkrishna Maiti	Vidyasagar University, West Bengal	06-09 Dec 2017
Prof. Soumendu Chatterjee	Presidency University, West Bengal	06-09 Dec 2017
Dr. Sibabrata Das	Ravenshaw University, Odisha	11-13 Dec 2017
Mrs. RNK Sharma	Birla Institute of Technology, Bihar	12-15 Dec 2017
Prof. S K Patnaik	R G University, Arunachal Pradesh	06-09, 11,13,14 Dec 2017

Following teachers from Rajiv Gandhi University affiliated Colleges attended the workshop

Slno.	Name	Designation	College
1.	Mr. Athuko Tayu	Asst. Professor	Rang – Frah Govt. College , Changlang
2.	Ms. Monalisha Borah	Asst. Professor	SFS College, Aalo
3.	Dr. Odol Pertin	Asst. Professor	IGG College, Tezu
4.	Mr. Tashi Dorjee Megeji	Asst. Professor	Govt. College, Bomdila
5.	Ms. Hetngoi Suyang	Asst. Professor	Govt. College, Bomdila
6.	Ms. Rinkiolu Chai	Asst. Professor	Govt. Degree College, Roing
7.	Ms. Mudang Rina	Asst. Professor	WRGC, Deomali
8.	Mrs. Nani Yadi	Asst. Professor	Govt. College, Yachuli
9.	Mr. Ongken Pomung	Asst. Professor	Bethany College, Namsai
10.	Mr. Debojit Gogoi	Asst. Professor	Saint Claret College, Ziro.
11.	Mr. Nabam Tabang	Asst. Professor	Govt. College, Yachuli
12.	Mr. Jemni Tali	Asst. Professor	Rang – Frah Govt. College , Changlang
13.	Dr. Tumter Lollen	Assoc. Professor	Binni Yanga Govt. Womens College, Lekhi
14.	Dr. Jumri Riba	Asst. Professor	Binni Yanga Govt. Womens College, Lekhi
15.	Mr. Sunil Bhodro	Asst. Professor	Donyi Polo B Ed College, Itanagar
16.	Mr. Talom Taloh	Asst. Professor	D N G College, Itanagar
17.	Mr. Devadar Sengdo	Asst. Professor	D N G College, Itanagar
18.	Dr. Sailajananda Saikia	Assoc. Professor	R G University, Doimukh

The resource persons covered in details on following Data analysis and Modelling methods with spatial and non-spatial data from various sources, maps, instruments available in the Department during training programme.

1. **Statistics & Excel: (Prof. Soumendu Chatterjee & Prof. S K Patnaik,)**
   a. Normal distribution, +/- 1 σ, graphical representation, skewness & Kurtosis
   b. Excel
      i. Components of excel window
      ii. Spreadsheet
      iii. Variable type
      iv. Data input
      v. Cell functions / operations
   c. **Statistical functions** (mean, Median, Mode, Standard deviation, Correlation, Regression, Confidence limit with examples from population, agriculture, education.. data)
      i. Manual and
      ii. Excel
   d. **Graphics in Excel**
      i. Line graph
      ii. Bar / column graph
      iii. Stacked / 100 percent bar
      iv. Line fit (regression) / Trend line
      v. Scatter diagram
      vi. Star Diagram (Monthly data)
      vii. Ergograph
   e. **Sampling**
      i. Random Number generation (from Random Table and using Excel)
      ii. Sampling of households and villages

2. **Cartography/Toposheet based Exercises (Prof. Ramkrishna Maiti)**

   a. Indian Toposheet and International toposheet number

   b. Map scale and measurement of length and area (Planimetric and coordinate pair method)

      i. Planimeter, Area calculation
      ii. Grid method
   c. Coordinate pair method
   d. Stream Order, Bifurcation ratio, weigthted Rb, Hypsometric curve, Hypsometric integral
   e. Slope, Calculation of slope, Plan, Profile; curvature (with graphics)

3. **Climate Data Analysis (Prof. Ramkrishna Maiti & Prof. S K Patnaik)**
   a. Temperature Rainfall data sources (IMD/ Indiawater portal)
      i. Rainfall annual data 50/100 yrs: Bar Graph and Trend line
   b. Monthly temp and rainfall data: Scatter diagram
   c. Monthly Temperature: Star Diagram
   d. Ergograph

4. **Population Data Analysis and Modelling (Dr. Sibabrata Das)**
   a. Sources of data & Graphical Representation with Excel
      i. Male, female, Marginal workers
      ii. Sex ratio, Density (Bar Graph)
      iii. Population Pyramid
      iv. Decadal growth (calculation) & (Line graph)
      v. Literacy (Pie Chart)

5. **Agriculture Data Analysis: (Dr. Sibabrata Das)**
   a. Sources of data & Graphical Representation with Excel
      i. Crop Area
      ii. Production
      iii. Yield calculation
   b. Area under various crops
      i. Stacked bar
      ii. Stacked 100 percent

6. **Remote Sensing (Mrs. Reecha Sharma)**
   a. Types, Platforms
      i. Active /Passive
      ii. Aerial / Satellite
   b. Resolutions
      i. Spatial
      ii. Spectral
      iii. Radiometric
      iv. Temporal
   c. Sources of data
      i. Bhuvan
      ii. GLCF
      iii. Alaska Satellite Facility
      iv. CGIAR
      v. GloVis
      vi. Toposheets (US army maps)
   d. Georefernceing
      i. Projection: UTM
      ii. Toposheets
      iii. Maps: feature based

7. **GIS (Mrs. Reecha Sharma, Prof. S. K. Patnaik)**
   a. Spatial Data sources (Analogue & Digital)
      i. Toposheets (SoI), Geological Map (GSI), Thematic Maps (NATMO)
      ii. Diva-GIS data, Bhuvan, SEDAC
   b. Software
      i. ArcGIS, QGIS, Open source
   c. Data input
      i. Scanned map
      ii. Digitization of point line polygon
      iii. Topology
   d. Attribute data
   e. Data Analysis
      i. Buffer
      ii. Clip
      iii. MapCross
      iv. Interpolation (IDW)

8. **GNSS (Prof. S K Patnaik)**
   a. GNSS handling
   b. Data retrieval
   c. Mobile Apps

Feed back of participants were received during valedictory session, which were positive and connoted as welcome step by the University that has helped in conducting Practical Exercises as per the syllabus as well as use it for their own research work. Certificates were issued to participants for successfully completing the training cum workshop.

(Prof S K Patnaik)

Head,
Department of Geography
R G University

Acknowledgement:

1. I as workshop Coordinator and on behalf of the Department and R G University express our appreciation and gratitude to Dy Director, ICSSR-NERC for comprehending the necessity and effort to organize the workshop and extend financial support.
2. As Head of the Department and workshop coordinator I express our thankfulness to the University authority for according approval to conduct this workshop and extend financial support to organize it.
3. I appreciate the kind gesture and support of our esteemed faculty members to organize the workshop.