



**SAARC Training Programme
on
Geoinformatics for Disaster Management**

Organized by

**SAARC Disaster Management Centre,
New Delhi**

**In collaboration with
Indian Institute of Remote Sensing, (IIRS)
Dehradun, Uttarakhand, India**

July 04-17, 2011

TRAINING COMPLETION REPORT

Prepared by

**SAARC Disaster Management Centre,
New Delhi**

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1. BACKGROUND

The SAARC countries, due to their geographical locations, tectonic setting and the hydro meteorological conditions, are hot bed for natural disasters and human induced disasters. The Himalayan and Hindukush mountains capping the northern fringe of the region have a proven history of earthquakes, some of which have been devastating in nature. The region has also witnessed landslide menace the reasons being ingrained in the inherent rock rheology, their slope and other geological factors and also hydro meteorological factors. The South Asian region has a coast line of nearly 12,000 kilometers which in recent and historical times has faced disasters arising from cyclones, storm surges, sea level rise and coastal erosion. The urbanization practices in the South Asian cities have largely been haphazard and unplanned, thus magnifying the susceptibility of these cities to natural or human induced disasters. These factors call for a need of adopting improved practices of disaster mitigation and management practices. In the recent times the addressing of issues related to disaster management has received a support in form of availability of a wide range of remotely sensed data products and advanced GIS techniques for analysis, interpretation of disaster data, the end product being blue print maps and simulation models of various kind which have found useful application in disaster management practices. Use of Geoinformatics is helpful in accessing correct and timely information on spatial data for comprehensive disaster management programmes useful for policy making, urban planning, administration and other such interests of the stakeholders involved in disaster mitigation.

It is imperative to gather, organize and display the information in a logical way so as to enable easy accessibility of disaster related information for better use in disaster mitigation and planning. It is also equally necessary to translate the available information into action to be executed in each stage of disaster prevention, emergency response, recovery and construction. The dataset required for such an elaborate exercise is often voluminous, diverse in their coverage and quality and in addition, can also be transitory. In this regard the knowledge of Geoinformatics is unique as it is capable of handling datasets from various sources and levels and in addition also provides the access of dataset with rapidity and simultaneous accessibility. In this backdrop, SAARC Disaster Management Centre (SDMC), New Delhi, India organized a comprehensive training on “Geoinformatics for Disaster Management” in collaboration with Indian Institute of Remote Sensing (IIRS) Dehradun, India to expose the professionals from the SAARC member countries to the necessary preparedness for visual display of critical spatial information and multiple level decision making within easy reach with the help of latest remote sensing and GIS techniques.

The training on GIS techniques for disaster management was organized by SDMC for the third consecutive year in collaboration with IIRS. The earlier trainings were of one week duration but based on the overwhelming response and feedback of the participants of the training organized in 2010, the duration of this

year's training was increased to two weeks, between 4 and 17 July 2011. The training was attended by 21 participants selected from 31 applications received. As compared to the previous two training courses, this year's course included additional lectures on advanced topics of various disaster themes and their preparedness, more exposure for the participants on image processing and GIS techniques and exclusive session for country presentations by the participants.

2. THE ORGANISERS

SAARC DISASTER MANAGEMENT CENTRE (SDMC)

SAARC Disaster management Centre (SDMC) was inaugurated on 10th October 2006 with a mission to serve its eight member countries: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka to function as a Centre of Excellence for knowledge, research and capacity building among the member countries. Its responsibilities include collection, compilation and dissemination of disaster data and information, disseminate research findings, policy formulation and organize awareness programmes for the stakeholders, to name a few. In addition to these, one of its other activities remains organizing training programmes for the disaster management for the member countries.

INDIAN INSTITUTE OF REMOTE SENSING (IIRS)

Indian Institute of Remote Sensing (IIRS) is a premier training and educational institute set up for developing trained professional in the field of Remote Sensing, Geoinformatics and GPS Technology for natural resources, environmental and disaster management. The main area of the function of the institute is capacity building through technology transfer among user community, education at post-graduate level in the application of Remote Sensing and Geoinformatics for natural resources management and promote research in Remote Sensing and Geoinformatics.

3. PARTICIPATION

The training programme had participation of 21 participants from 5 of the 8 SAARC member countries (Figure 1). 31 applications and nominations were received and the final list was prepared after scrutiny of the applicants. The training was attended by representatives from Afghanistan (2), Bangladesh (7), India (7), Nepal (3) and Pakistan (2). No nominations were received from Bhutan, Maldives and Sri Lanka. A detailed list of participants is included in Annexure I.

4. COURSE CONTENTS

The training course was designed in two parts to provide the participant trainees with an overall exposure to the techniques of image processing and GIS applicable for disaster management. The first part of the training programme included exposure to various aspects of the topic through a series of lectures and the other part included specialized theme based training and hands-on-practice sessions. The training course was designed to cover the following modules:

- **Module 1: Introduction**

1. Introduction to Geoinformatics.
2. Disaster management and Geoinformatics.
3. Spatial data requirement in disaster management.
4. Case studies of application of GIS technology in disaster studies.

- **Module 2: Hazard, Vulnerability and Risk (HVR) assessment**

1. Hazard types and methods of hazard assessment.
2. Physical and socio-economic vulnerabilities and multi hazard risk assessment.
3. Quantitative and qualitative risk assessment methods.
4. Participatory GIS.

- **Module 3. Elements at risk**

1. Types of elements at risk.
2. Classification of buildings, critical facilities, lifeline structures and other infrastructures.
3. Generation of database of elements of risk using building types, census datasets and DEMs.

- **Module 4. Disaster management**

1. Basic concepts of disaster management.
2. Role of risk information in emergency planning and preparedness.
3. Early warning systems for major hazards.
4. Use of spatial data in response and recovery.

- **Module 5. Specialised theme based training with hands-on-exposure**

Use of Geoinformatics in the context of various disasters like earthquakes, flood, landslides etc.

Practical sessions were integrated with the various modules. The tutorial and practical sessions of the course were designed to expose the trainees to the application of the theoretical aspects of disaster management with the aid of image processing and GIS techniques. Two field excursions were arranged for the participants to have a feel of the landforms, land use practices and active tectonic features of the region.



Figure 1. The participants of the training with the coordinators or SDMC and IIRS and the resource persons for the training.

5. **METHODOLOGY ADOPTED FOR THE TRAINING**

The training schedule was formulated in a manner to impart gradual and systematic lessons to the trainees. Due care was taken to organize the series of lectures to maintain continuity of the subject and facilitate easy understanding of the topics by the trainees. The training included a 4 –tier hierarchy for the course: Tutorials/lectures, practicals, educational tours and country presentations and discussions.

6. **TRAINING FACULTY AND FACILITIES**

The training was provided by experts from Indian Institute of Remote Sensing (IIRS), Dehradun guest faculty drawn from various national and international organizations working in the field of Geoinformatics and its application in disaster management.

The lectures were held in the lecture hall of the CSSTEAP building of IIRS which is equipped with state-of-the-art facilities conforming to the international standards of presentation. The practical demonstrations and hands-on-practice for the trainees were carried out in the MIDAS lab. Facilities were available for each of the trainees to work on individual systems to provide them with maximum opportunity to get familiarized with the softwares. Internet facilities were available which helped the trainees to prepare their country presentations, accessing relevant technical information and communicating with their organizations and family and friends.

The participant trainees were accommodated in the IIRS hostel. The rooms were conforming to the international standards and were equipped with the facilities of cooking, refrigerator and other necessary requirements.

7. **COURSE SCHEDULE**

The entire course was divided into lectures and practical sessions. The tutorial and lectures were of 1 hour 30 minutes duration each while the practical demonstrations and hands-on sessions were of 2 hours duration. Apart from the scheduled lectures and practical sessions, the interested participants were also provided with additional time whenever they approached the coordinators. The course schedule was as given below.

Week-1

Date	0930-1100 hrs	1130-1300 hrs	1400-1530 hrs	1600-1715 hrs
04.07.2011	Registration (SKS/RU/ KG) & Inauguration	L1 (SA)	L2 (GF)	P1 (RSC/RU/SKS)
05.07.2011	L3 (PST)	L4 (MK)	P2 (MK/PST)	
06.07.2011	L5 (PKG)	L6 (SS)	P3 (SS)	P4 (SS)
07.07.2011	L7 (GF)	L8 (GF)	UN-SPIDER	

08.07.2011	UN-SPIDER	L9 (AK)	P5(AK)
09.07.2011	FIELD EXCURSION – 1 (SKS/SK/RU)		
10.07.2011	SUNDAY (FREE DAY)		

Week-2

Date	0930-1100 hrs	1130-1300 hrs	1400-1500 hrs	1530-1715 hrs
11.07.2011	L10 (ICD)	L11 (BSS)	L12 (AKM)	P6 (SM/BDB)
12.07.2011	L13 (PKC)	L14 (GF)	L15 (DM)	P7 (PKC/ICD)
13.07.2011	L16 (SPA)	L17 (NRP)	L18 (GF)	P8 (PKT/VG)
14.07.2011	L19 (GF)	L20 (GF)	L21 (GF)	P9 (GF)
15.07.2011	L22 (GF)	L23 (UN-ESCAP)	L23 (UN-ESCAP)	Valedictory Function
16.07.2011	L24 (RSC)	L25 (SKS)	FIELD EXCURSION - 2 (AG/VG/SK)	
17.07.2011	Country presentations by course participants		Feedback and Local Visit	

L-Lecture, P-Practicals

Tea/Coffee Break : 1100-1130 hrs and 1530-1600 hrs; Lunch Break : 1300-1400 hrs

Faculty

AG – Dr. Ajanta Goswami

AK – Dr. Anil Kumar

AKM – Dr. A.K. Mishra

BSS – Prof. B.S. Sokhi

BDB – Mr. B.D. Bharath

DM – Dr. D Mitra

GF – Guest Faculty

ICD – Mr. I.C. Das

MK – Ms. Minakshi Kumar

NRP – Dr. N.R. Patel

PKC – Dr. P.K. Champati ray

PKG – Mr. Prasun K. Gupta

PKT – Praveen K. Thakur

PST – Ms. Poonam S. Tiwari

RSC – Dr. R.S. Chatterjee

RU – Ms. Richa Upadhyay

SA – Ms. Shefali Agrawal

SK – Dr. S. Kumar

SKS – Dr. S.K. Srivastav

SM – Dr. Sandeep Maithani

SPA – Dr. S.P. Aggarwal

SS – Dr. Sameer Saran

VG – Dr. Vaibhav Garg

PC (Academic Office)

MLB - M.L. Batra

KG – Shri Krishna Gopal

Guest Faculty

International

Dr. Shirish Ravan, UN-SPIDER

Dr. Rajesh Sharma, UNDP

National

Dr. T. Srinivas Kumar, INCOIS

Dr. K. Bandopadhyay (IIT-Kg)

Dr. S.K. Jain, NIH, Roorkee (GLOF)

Dr. Yogendra Siingh (IIT-R)

Dr. Milap Punia, JNU (PPGIS)

Dr. Amod Kumar

Dr. MSR Murthy, NRSC, Hyderabad

Dr. Bhanumurthy, NRSC, Hyderabad

Lectures

Lecture	Topic	Faculty
L1	An overview of Earth observation techniques	SA
L2	Basic terminologies in disaster management, different types of natural hazards and spatial data requirement in disaster management	GF
L3	An overview of digital image processing and image enhancement techniques for improved Earth observation data analysis	PST
L4	Automated information extraction and change detection from Earth observation data	MK
L5	Geodatabase creation, organisation and spatial analysis	PKG
L6	Concepts and applications of WebGIS in disaster management	SS
L7	Community mapping and Public Participatory GIS in disaster management	GF
L8	Socio-economic data analysis for vulnerability assessment	GF
L9	Concepts of GPS and Mobile GIS and their application in real-time data collection with reference to disaster management	AK
L10	Methods of hazard, vulnerability and risk assessment and role of geospatial data	ICD

L11	Mapping elements at risk and multi-hazard risk assessment in urban areas	BSS
L12	Application of remote sensing and geoinformatics for cyclone studies	AKM
L13	Landslide hazard modelling and vulnerability analysis (PKC)	PKC
L14	Geoinformatics in seismic hazard, vulnerability and risk evaluation	GF
L15	Application of geoinformatics in coastal hazards	DM
L16	Flood mapping, monitoring and damage, vulnerability and risk assessment using geoinformatics (SPA)	SPA
L17	Agriculture drought assessment and monitoring using Earth observation data	NRP
L18	Glacial lake outburst flood (GLOF) hazard assessment using Earth observation data and modelling techniques	GF
L19	Real-time mapping and monitoring of forest fires using Earth observation data	GF
L20	National database for emergency management	GF
L21	Geospatial technologies for tsunami early warning system	GF
L22	Satellite communication for information dissemination during emergency situations	GF
L23	Harnessing regional/ international cooperation in disaster risk reduction for capacity development in South Asia Recent trends in EO Techniques and applications for Disaster Management	GF
L24	Differential radar interferometry (DInSAR) for detecting land subsidence and crustal deformation	RSC
L25	Groundwater pollution and hazards analysis	SKS

Practicals

Practical	Topic	Faculty
P1	Hands-on-experience with different types of Earth observation satellite data products and their analysis for identification of surface features	RSC/RU/SKS
P2	Automated information extraction from Earth observation data	MK/PST

P3	Creation and organisation of geodatabase in GIS	SS
P4	Demonstration and hands-on experience with Geoportals and WebGIS applications for disaster management support	SS
P5	Demonstration and hands-on experience with Mobile-GIS for spatial data collection	AK
P6	GIS based risk assessment in urban environment (SM/BDB)	SM/BDB
P7	Landslide hazard modelling and vulnerability analysis (PKC/ICD)	PKC/ICD
P8	Flood mapping, monitoring and damage assessment	PKT/VG
P9	Demonstration on Tsunami early warning system in Indian Ocean	GF

Field Excursions

Excursion-1	Field excursion around Dehradun valley	SKS/SK/RU
Excursion-2	Field excursion around Dehradun valley/ Local Institutional visit	AG/RU/SKS

8. PROCEEDINGS OF THE TRAINING COURSE

Day 1(04.07.2011)

The day began with registration of the participants, distribution of registration kit and course volume. This was followed by the inaugural function which was organized in the IIRS auditorium (Figure 2). The dignitaries present on the dais were Dr. R.S. Teolia, Former Chief Secretary Uttarakhand state; Dr. P. S. Roy, Director IIRS; Dr. O.P. Mishra, Officiating Director SDMC and Dr. S.K. Srivastav, course coordinator IIRS. The inaugural function started with introduction of the dignitaries on the dais by the IIRS course coordinator and was followed by the traditional lighting of lamps and Saraswati vandana. A copy of the inaugural programme is enclosed as Annexure-II.

In his inaugural address Dr. P. S. Roy extended a warm welcome to the participants and explained the glorious history of IIRS as a premier organization in the field of remotely sensed data information and techniques. Dr. S.K. Srivastav gave a brief overview of the course structure. In his speech Dr. O.P. Mishra highlighted the important role SDMC has been playing in the field of disaster management in the regional context. He also deliberated on the initiatives of SDMC for capacity building in the region. The chief guest of the ceremony, Dr. R.S. Teolia shared his vast experiences in disaster management and the role of national and state governments in disaster management cycle. The inaugural session ended with vote of thanks.

The technical part began with an overview of the earth observation techniques where the trainees were exposed to the basic concepts of remote sensing and image processing. This was followed by a lecture on

disaster management terminologies, types of hazards and spatial data requirement. In the afternoon, there was hands-on-experience with different types of earth observation satellite data products and their utilization for identification of surface patterns.



Figure 2. Inaugural ceremony of the training programme.

Day 2 (05.07.2011)

The lectures were focused on digital image processing and image enhancement for satellite data products and methods of automated information extraction and change detection from such datasets. In the afternoon practical session the trainees got chance to learn practical application of the discussed topics and practiced with supplied datasets.

Day 3 (06.07.2011)

The day began with an invited lecture from UNDP representative who gave an overview of establishing disaster loss databases for crisis prevention, it was followed by lecture on community mapping and public participatory GIS. The other lectures of the day included on topics of geo database creation, organization and spatial analysis and concepts and application of Web-GIS in disaster management. The last session of the day was practical demonstration and hands-on-exercise on web hosting of disaster management datasets.

Day 4 (07.07.2011)

This day was mostly dedicated to the invited lecturer from representative of UN-SPIDER who apprised the trainees of the functionality of UN-SPIDER and its role in information sharing and mobilisation of data products in the event of natural disasters. In the afternoon practical session demonstration and hands-on exposure

of BHUVAN portal of ISRO and the thematic information, web services and interactive 3-D modeling facilities hosted therein.

Day 5 (08.07.2011)

The activities of the fifth day of the training were on demonstration and hands-on-experience with geoportal and Web GIS applications for disaster support system and lecture on concepts GPS and mobile GIS and the methodology of collection of disaster related with the aid of these technologies. This was followed by a field demonstration of mobile GPS in the IIRS campus (Figure 3).



Figure 3. Field demonstration of mobile GPS.

Day 6 (09.07.2011)

The trainees were taken for a field trip around Mussourie. They were shown the geological and geomorphological features in and around Mussourie and the field evidences of landslides in the area. They were also taken to Sahashradhara falls but they could not access Kemptee falls as the approach was inaccessible due to fresh landslides.

Day 7 (10.07.2011)

This was a free day in the otherwise end-to-end schedule of the training. However, the trainees used it also for constructive use like catching up with spill over assignments and discussions among themselves on the course they had been exposed during the preceding days.

Day 8 (11.07.2011)

After a well deserved days break the trainees returned to the lecture rooms with renewed vigour and participated in the activities. The topics of this day's lecture included methods of hazard, vulnerability and risk

assessment, and the role of geospatial data multi hazard and risk assessment in urban areas and applications of remote sensing and geoinformatics in cyclone mitigation. The practical session was dedicated to the use and application on ALOHA program for chemical hazard assessment. The trainees were later given opportunity to explore the application with some data supplied.

Day 9 (12.07.2011)

The lectures on the ninth day of the training included landslide hazard modeling, application of geoinformatics in seismic hazard, vulnerability and risk estimation and lastly application of geoinformatics in coastal hazards. The day's practical session included exercise on landslide hazard zonation and vulnerability analysis in which the trainees practiced with supplied data sets.

Day 10 (13.07.2011)

The lectures included use of earth observation data and modeling techniques for flood, drought and GLOF. The latest developments in the field of geoinformatics were explained to the trainees with some examples and case studies. The practical session for the day was aligned in the line of the lectures and was on extraction of flood hazard map from RADARSAT data.

Day 11 (14.07.2011)

The lectures for the eleventh day of the training included techniques of real time mapping of forest fires using earth observation data; geospatial technologies for disaster emergency management and geospatial technologies for tsunami early warning system. The related practical session was on application of GIS techniques for tsunami early warning.

Day 12 (15.07.2011)

The day's lectures included role of satellite communication in information dissemination during emergency situations and utility of digital SAR data in land subsidence detection and crustal deformation studies.

The valedictory function of the training course was organized on this day (Figure 4). The chief guest for the function was Dr. V.B. Mathur, Dean, Forest Research Institute, Dehradun. S.K. Srivastav, course coordinator IIRS presented the course report. Mriganka Ghatak, course coordinator SDMC congratulated the trainees on successful completion of the training programme and elaborated upon need of more regional scale initiatives towards capacity building and importance of information dissemination in the context of SAARC regional set up. Dr. V. B. Mathur presented the keynote speech and distributes the certificates to the participants. Some of the trainees shared their experiences of the training and provided constructive suggestions for improvement of the training course in future. The valedictory function ended with vote of thanks. A copy of the valedictory programme is enclosed as Annexure –III. A valedictory dinner was arranged for the trainees and the other delegates in the evening at Hotel Viceroy Inn.



Figure 4. Valedictory session of the training.

Day 13 (16.07.2011)

The trainees were taken for a field trip to the areas north of Dehradun to show them the demonstration of Automated Warning System (AWS) and stream dynamics. They were also shown the field signatures of Main Boundary Thrust (MBT) and its sympathetic fault systems and the landform patterns related to them (Figure 5).



Figure 5. Field signature of thrusting demonstrated to the trainees.

Day 14 (17.07.2011)

The last day of the training was earmarked for country presentations by the participants. The participants presented various aspects of disaster management viz. the policies, case studies, GIS application in hazard and

vulnerability analysis. The session was very interactive and presented an opportunity for the trainees to get updated about the developments in the SAARC region (Figure 6).



Figure 6. Country presentation by the trainees.

9. COURSE EVALUATION

A specially designed feedback form was circulated among the trainees at the end of the training programme for them to evaluate various aspects of the training (Sample feedback form is enclosed as Annexure –IV). These included views of the trainees on achievement of the course objectives; program organization; theme coverage through lectures; demonstrations and discussions; duration of the course; logistics and further suggestions. A summary of the feedback of the training is given in the following table.

		Very Much	Much	Little	Very Little	Excellent	Very Good	Good	Fair	Poor	Short	Adequate	Long
1	Objective of the course achieved	9	12	-	-	-	-	-	-	-	-	-	-
2	Program Organization	-	-	-	-	16	4	1	-	-	-	-	-
3	Theme coverage through lecture	-	-	-	-	-	11	7	2	-	-	-	-
4	Demonstration and Discussions	-	-	-	-	-	13	8	-	-	-	-	-
5	Duration of Course	-	-	-	-	-	-	-	-	-	7	14	-

6	Logistics (boarding lodging, transport)	-	-	-	-	17	4	-	-	-	-	-	-
7	Suggestions												

Most of the trainees were of the opinion that the objectives of the course were achieved through the different methodologies adopted for the training and the organization of the program was excellent. The various themes covered through lecture were rated as very good to good and the trainees also found the demonstrations very useful. Most found that the duration of the course was adequate though some preferred for longer course duration. The logistics like the facilities of boarding, lodging and transport was found excellent by most of the trainees.

Some constructive suggestions were provided by the trainees. Some of them expressed that the practical and hands-on sessions should be strengthened by increased their numbers while some felt that the demonstrations of the practicals should be more elaborate for easy understanding of those who do not use GIS platform regularly.

10. CONCLUSIONS AND RECOMMENDATIONS

The duration for the training course was increased by one week on the suggestions and feedbacks of the trainees who had attended this course on past two occasions. The increased duration of the course enabled the trainees for this year’s course to get more familiarized with the relevant aspects of geoinformatics and its application in disaster management. They also got more chance to work on various softwares and additional practice sessions were offered to those interested.

However, some of the participants also mentioned that inclusion of more practical sessions in the training schedule would be helpful for them in imbibing the functionalities of the softwares in a better way. In future this aspect may be kept in to consideration. Moreover, if the trainees are allowed to work with diverse datasets belonging to various disaster themes, the training will be more informative and useful for the trainees.

It may be mentioned here that one of the problems of the training was non receipt of nominations for the training from the national focal points. Better representation from the member states with nominations from the national focal points will be helpful in achieving the objectives of conducting such training courses more meaningfully.

ANNEXURE-I

List of Participants of SAARC Training Programme on Geoinformatics for Disaster Management in Collaboration with IIRS Dehradun, from 04-17 July 2011

Sl. No.	Name	Educational Qualifications	Organisation Name & Address	Telephone/FAX No	e-mail address
1	Hamidullah	B.S. Political Law, department Management	Opposite of Public Health Department, ANDMA office, Chagcharan, Ghor, Afghanistan		
2	Eng Mohammad Akbar Jan	Kabul university engineer faculty		(O) 0093799441451	
3	A.K.M. Alamgir Kabir Dev	Bachelor and Masters of Urban Regional Planning	Sheltech (pvt.) Ltd., Sheltech Tower, 55, B.U. Qazi Nuruzzaman Road, Dhaka-1205, Bangladesh	M- 08801916947164 0088029143332	dewan.220380@gmail.com
4	Israt Jahan	Masters of Urban and Regional Planning	Department of Urban & Regional Planning, Chittagong University of Engineering and Technology (CUET), Chittagong, Bangladesh	M- 08801819435981	sheulyurp@gmail.com israt_jahan.cuet@yahoo.com
5	Saiful Azim	Bachelor of Urban and Rural Planning (BURP)	Department of Urban & Regional Planning (URP), Khulna University of Engineering & Technology (KUET), Khulna - 9203, Bangladesh	(O)- 08801714087301 (M)008801712514988	symon0626@gmail.com
6	Mustafa Atikul Mazid	Bachelor of Urban and Rural Planning	DDC Centre; Mohakhali C/A, Dhaka – 1212, Bangladesh	008801737167328, (O) 008822980, 8815234 (F) 0088028810337, 8828434	tushar060401@gmail.com
7	Kamonashish Haldar	Bachelor of Urban and Rural Planning	Development Design Consultants Limited, DDC Tower, 47 Mohakhali C/A, Dhaka, Bangladesh	(M)008801717244482 (O)0088029883374	sayan_050402@yahoo.com
8	Golam Mohiuddin	Bachelor of Science in Engineering	Institute of Water modelling, House-496, Road-32, New DOHS, Mohakhali, Dhaka-1206, Bangladesh	(O) 0088028824590 ext-380 (M)008801916371733 (F)0088028827901	gom@iwmbd.org
9	S. M. Mostafizur Rahman	Bachelor of Urban and Rural Planning	SURVEY2000, House#54, Road# 15, Block-D, Banani, Dhaka-1213, Bangladesh	0088-01723433929, 0088-01811327872	suzon06_urp@yahoo.com
10	Ms. Neha Bansal	B. Architecture, masters in Planning, IIT, Kharagpur	Dept. Of Architecture & Planning, I.I.T. Roorkee, Dist. Haridwar.	(M)07669038518 (O)01332-285214	nehabansal02@gmail.com
11	Paritosh Upreti	Post Graduate in Geography	HNB, Garwhal University, Srinagar.	(M)08126141670	paritosh.vagabond@gmail.com
12	Ms. Jenita M. Nongkynrih	Masters degree in Geography	North Eastern Space Applications Centre, Dept. Of Space, Govt. of India, Umiam – 793103, Meghalaya	(P)0364-2570918 (F)0364-2570139	jnongkynrih@gmail.com
13	Dr. Vinod Kumar	M.Sc Geology, Phd.	Project Engineering Colony, N.R., Geological Survey of India, Aliganj, Lucknow - 226021	(M)09532963216	kumarvinod112@gmail.com vinod.kumar3@gsi.gov.in
14	Shri. P. Balaji	M.Sc (App. Geology), M. (Remote Sensing)	Geologist, PGRS Divn, GSI, SR, Bandlaguda Complex, Hyderabad	(M)09441261076	jibbal2000@yahoo.com
15	Shri. Bahadur Ram	M.Sc (Tech), Ph.d (Geophysics)	Geological Survey of India, 27, J.L Nehru Road, Kolkata	(M) 09163064712 (O)-033-228617741 (F)033-22861774	drbram_bhu@yahoo.co.in
16	Mr. Haridass Sharma	Post Graduate diploma in Computer Applications (PGDCA)	SAARC Disaster Management Centre, NIDM Building, IIPA Campus, New Delhi -110002	09871959734	harry.saarc824@gmail.com
17	Ajay Raj Adhikari	M.Sc (Engineering Geology)	Midwestern Regional Irrigation Directorate, Briendranagar-7, Surkhet, Nepal	M-00977-98510-89289 (O)00977-083-520302 (F)00977-083-520314	ajayradhikari@gmail.com
18	Kali Prasad Parajuli	Masters of Public Administration	Ministry of Home Affairs, Kathmandu, Nepal	(M) 00977-4154028 (O) 00977-4211200	parajuli@yahoo.com

				(F) 00977-4200103	
19	Rajendra Man Shrestha	B. E. Civil Engineering, M.Sc U Planning	Dept od Urban Development & Building Construction, Babar Mahal, Kathmandu	(M)00977-01-9841236480 (O)00977-01-4262466,365,367 (F)00977-01-4262439	rajms2011@live.com
20	Mr. Muhammad Waqas Javed	MSc. In Geology	National Centre of Excellence in Geology, University of Peshawar	(M)0092332-9331344 (F)0092-91-9218183	waqasj85@gmail.com
21	Mr. Babar Siddique	MS	National Centre of Excellence in Geology, University of Peshawar	(M)092-312-6646692	geobsa29@gmail.com

ANNEXURE-II

SAARC Training Programme on GEOINFORMATICS FOR DISASTER MANAGEMENT

July 04–17, 2011

Organized by

SAARC Disaster Management Centre, New Delhi (India) in collaboration with

Indian Institute of Remote Sensing, Dehradun, Uttarakhand (India)

Venue

Lecture Theatre, Indian Institute of Remote Sensing (IIRS)

INAUGURAL PROGRAMME

Date: 4th July 2011

10:00–10:02 hrs	Welcome of the Chief Guest & Dignitaries on the dais
10:02–10:05 hrs	Introduction of the Chief Guest by Dr. S. K. Srivastav, IIRS
10:05–10:10 hrs	Lighting of Lamp by the Chief Guest & Dignitaries on the dais Invocation (Saraswati Vandana) by Ms. Sarita Bansal, JRF, IIRS
10:10–10:15 hrs	Welcome Address by Dr. P. S. Roy, Director, IIRS
10:15–10:20 hrs	Brief about the course by Dr. S. K. Srivastav, IIRS
10:20–10:30 hrs	Self introduction by the course participants
10:30–10:40 hrs	Address by Dr. O. P. Mishra, Officer-in-charge, SDMC and Head, GDD
10:40–10:55 hrs	Inaugural Address by the Chief Guest Dr. R. S. Tolia
10:55–11:00 hrs	Vote of thanks by Ms. Richa Upadhyay, IIRS
11:00–11:25 hrs	Tea

ANNEXURE-III

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Dehradun, Uttarakhand (India)

Venue

Lecture Theatre, Indian Institute of Remote Sensing (IIRS)

VALEDICTORY PROGRAMME

Date: 15th July 2011

15:00–15:10 hrs	Welcome Address and Introduction of the Chief Guest by Dr. M. C. Porwal, Programme Coordinator (Academic), IIRS
15:10–15:15 hrs	Course overview by Dr. S. K. Srivastav, Course Coordinator, IIRS
15:15–15:20 hrs	Remarks by Mr. M. Ghatak, Course Coordinator, SDMC, New Delhi
15:20–15:30 hrs	Distribution of certificates by the Chief Guest Dr. V. B. Mathur, Dean, Faculty of Wildlife Sciences, Wildlife Institute of India, Dehradun
15:30–15:35 hrs	Course feedback by two course participants
15:35–15:50 hrs	Valedictory Address by the Chief Guest
15:50–15:55 hrs	Brief remarks and felicitation to Chief Guest by Dr. P. S. Roy, Director, IIRS
15:55–16:00 hrs	Vote of thanks by Ms. Richa Upadhyay, IIRS
16:00 hrs	Hi-Tea

ANNEXURE-IV

Sample feedback form

**SAARC Training Programme
Geoinformatics for Disaster Management
(4 – 17 July 2011)**

Organised by
SAARC Disaster Management Centre, New Delhi (India)
In collaboration with
Indian Institute of Remote Sensing, ISRO, Dept. of Space, Govt. of India
Venue: Indian Institute of Remote Sensing (IIRS), Dehradun (India)

FEEDBACK FORM

1. Objective of the course achieved:
 Very much :
 Much :
 Little :
 Very little :


2. Program Organization:
 Excellent :
 Very good :
 Good :
 Fair :
 Poor :

3. Theme coverage through lecture:
 Very good :
 Good :
 Fair :
 Poor :

4. Demonstration and Discussions
 Very good :
 Good :
 Fair :
 Poor :

5. Duration of Course:
 Short :
 Adequate :
 Long :

6. Logistics (boarding, lodging, transport)
 Excellent :
 Very good :
 Good :
 Fair :
 Poor :

7. Suggestions : *In future such programmes can be more detailed. The programme had given more information on the earth observation technology. My gratitude to SAARC & IIRS for all the facilities.*
Signature : 

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