

**GOVERNMENT OF INDIA
GEOLOGICAL SURVEY OF INDIA
TRAINING INSTITUTE**



PERSPECTIVE PLAN

**TRAINING POLICY COORDINATION COMMITTEE
MINISTRY OF MINES
NEW DELHI**

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GOVERNMENT OF INDIA

GEOLOGICAL SURVEY OF INDIA TRAINING INSTITUTE

PERSPECTIVE PLAN

1. INTRODUCTION

1.1 PRELUDE:

Geological Survey of India Training Institute with its headquarters at Hyderabad and six Regional Training institutes, one each at its Regional headquarters of Geological Survey of India viz., Hyderabad, Lucknow, Kolkata, Nagpur, Jaipur and Shillong, and eight Field Training Centres viz., Bhimtal, Saketi, Zawar, Kaju, Chitradurga, Raipur, Kothegudem and Aijwal backed by the state-of-the-art GSI Laboratories imparts training in different disciplines of earth sciences. The GSI TI has embarked upon a plan to upgrade the facilities by expanding its activities and infrastructure to achieve the status of '**Centre of Excellence**' in the field of training in earth sciences.

1.2 ORGANISATION:

Geological Survey of India, the third oldest and largest geological of surveys of the world, has progressed from strength to strength from its modest beginning in 1851 and made significant contributions in Nation building by providing basic earth science information to the government, industry and public. It is charged with the geo-scientific study of the surface and subsurface of India, the inventory of mineral and other non-renewable natural resources and providing information on geo-scientific aspects of land, industries, minerals and infrastructure development. To keep pace with the changing scenario and priorities of the country, GSI has reoriented its activities to achieve the defined objectives and goals.

The functions and responsibilities of the Geological Survey of India are:

1. Preparing and updating geological, geophysical and geochemical maps of the country and its offshore area.
2. Exploring and assessing mineral and energy resources of the country and its offshore areas.
3. Systematically exploring the shallow subsurface domain of the country and developing and maintaining national drill core libraries and documentation centers.
4. Conducting research in earth sciences and promoting application of the new knowledge for effecting management of the earth system and its resources.
5. Fostering and promoting the understanding of geological knowledge to reduce risk to life and property from geological hazards and addressing societal issues to enhance quality of life.
6. Creating and maintaining earth science databases and acting as the national repository of earth science data generated by various organizations and disseminating these in public domain for developmental, educational and societal needs.

7. Holding, protecting and maintaining collections of rare and representative geological materials as national geological monuments, museums and parks.
8. Representing India in international bodies, participating in international collaborative scientific projects and developing data sharing net works with other countries.
9. Providing consultancy services and undertaking commercial projects in the country and abroad.
10. Undertaking such other activities, including training, as may become necessary in the light of developments in the field of earth and planetary sciences and related subjects.

2. GEOLOGICAL SURVEY OF INDIA TRAINING INSTITUTE (GSITI)

The Geological Survey of India Training Institute (GSITI) with Its headquarters at Hyderabad, an arm of Geological Survey of India, is a premier Earth science Training Institute in India, which was established in 1976 with the prime objective of orienting the new recruits (Geologists) of the GSI and providing them an in-depth professional training to meet the requirements of the Department.

The institution has diversified its activities and conducts for the middle level professionals Basic, Refresher, Advanced courses, Workshops etc. and allied research in the various disciplines of geosciences for scientific, technical and administrative streams. Adding to its programmes, the Insititute has been imparting sponsored trainings at the behest of DST, ISRO, Central and State Department viz. Indian Railways, A.P. State groundwater dept. etc periodically.

The future agenda too of the geological survey will be influenced by dominant economic or socioeconomic trends in the country. The priorities of Geological Surveys in the 21st century will depend on the extent to which major national concerns lie in resource exploitation, industrial development, high population growth or combination of these factors.

The thrust areas of GSI's activities in the coming years would be:

- (a) Mineral exploration
- (b) Digital archival and dissemination of digital data
- (c) Geochemical mapping,
- (d) Geophysical mapping
- (e) Airborne and Marine surveys
- (f) Remote Sensing & Hyperspectral Mapping
- (g) Active fault studies
- (h) Seismic zonation
- (i) Earthquake studies
- (j) Geo-environmental and Natural Hazard studies
- (k) Geotechnical investigations
- (l) Information technology etc.

2.1 TECHNICAL EDUCATION AND GSI TI ROLE:

The opening of the economy has suddenly seen a dramatic increase in the demand for geoscientists in the field of mineral exploration, geotechnical projects, geoenvironmental and Natural Hazards and other related fields. The National Mineral Policy -2008 of Government of India envisages capacity building of earth science resource in the country to meet emerging challenges in the domain of Mineral exploration .The All India Council of Technical Education also recently had emphasized the acute training needs in Earth Science System for teachers of various Universities / Institutions and professionals of different organizations for a holistic approach for man-power development in this highly multi and inter disciplinary field. Various courses of the GSI TI are already being availed of by some Universities viz. Osmania University, Mysore University etc for training their faculty. Increase in the extent of such participation and even demand for conducting special courses for University teachers/students can thus be expected.

In order to achieve desired results in implementing the programmes of GSI in the thrust areas and that of state/central organization and other stake holders, the GSITI has to gear up and design training programmes required for training of earth scientists of different categories.

2.2 SCENARIO OF THE STATE:

Universities, in general, woefully lack expertise in field survey and training component. Acknowledging GSITI capabilities in field training programmes, a number of Universities have been placing demands on the GSI for field training and GSI Training Institute has been helping the universities in conducting their field training programmes for Post-graduate students in geology. Thus, GSI TI serves in bridging the gap between the academic knowledge and the professional approach in the realm of the earth sciences. GSI TI have been imparting special field trainings and visits by the university students to different centres for interaction and guidance.

The need for training and knowledge transfer has assumed critical importance in the present scenario of rapid scientific and technological advances taking place in the field of geosciences. Attendant changes in approach and methodologies especially with the availability of numerous computer based applications have added to the pressure to keep up with latest developments. It is, therefore, imperative to develop a dynamic training policy in consonance with the changing geo-science context, to create the necessary pool of expertise in order to sustain strategic goals to achieve the vision in meeting the gap between academic knowledge and field practices, particularly for the newly inducted geoscientists, to create efficiency and expertise. The GSI TI envisions its role in a broader perspective leading to:

- i) Knowledge enhancement by exposing practicing geoscientists to new developments in fields related to their specialization, to create excellence.
- ii) Knowledge pooling by enabling direct or indirect interaction amongst related fields, to create synergy.
- iii) Human resource development related to attitudinal issues, cooperative behavior, goal-orientation, quality consciousness, etc., to create *esprit-de-corps*.

The Government of India recognizes Training as a vital Human resource Development mechanism and therefore has formulated a 'National Training Policy'.

2.3 HIGH POWERED COMMITTEE (HPC):

The **High Powered Committee (HPC)** constituted by Govt. of India vide Resolution No. 11(39)/2007-M.1 dated 7th January, 2008 to review the functioning of the Geological Survey of India, in its *Draft Report, March, 2009* has presented in Chapter XI a thorough review of **Geological Survey of India Training Institute (GSITI)** and recommended a radical overhaul of GSITI in chapter XIII and accorded Mission status (**Mission – V: Training & Capacity building**). It is intended that GSITI should have the Capacity and develops into a knowledge sharing institute not only in respect of GSI's own resources, but also of other stakeholders of the geo-scientific sector:- Central and State Government institutions, private sector institutions, academic and research institutions, etc

The policy of the Mission V: Training & Capacity Building as envisaged is:

- Training for all
- Training Needs assessment
- Periodic in-service training
- Programmes for middle / higher level management
- Courses on scientific, administrative and management
- Training for support systems

VISION:

- To be a well regarded and highly respected geoscientific training institution providing unique multi-disciplinary knowledge in the national interest
- To be perceived as a selfless training institution devoted to improving standards of training and knowledge delivery for the entire sector.
- help provide world class geoscientists in all leading geoscientific disciplines.

OBJECTIVES:

- Meeting the gap between academic knowledge and field practices, particularly of newly inducted geoscientists, to create efficiency.
- Knowledge enhancement by exposing practicing geoscientists to new developments in fields related to their specialization to create excellence.
- Knowledge pooling by enabling direct or indirect interaction amongst related fields to create synergy.
- Human resonance development related to attitudinal issues, cooperative behavior, goal-orientation, quality consciousness, etc., to create esprit-de-corps.

MISSION:

- The Training infrastructure must be capable of imparting 9-12 month induction training for up to 300 new Geoscientists every year.
- The training infrastructure must also be capable of providing refresher or capsule courses for in-service geoscientists of GSI and State DGMs

- There must be capacity available for high-end cutting edge knowledge delivery particularly for GSI and other Central Institutions.
- There must also be a capability for functioning as an internationally reputed training facility for private sector and geoscientists of other countries.
- The institute must provide high level advanced training to professionals to improve their skills and make them world class scientists.
- There must be plans to train geoscientists in multi disciplinary courses so that vision broadens the knowledge deepens and work culture improves.

3. SWOT ANALYSIS WITH REGARD TO THE GSI TI

Strength

Weakness

1. Expertise in field and lab. Trainings	1. Shortage of faculty
2. Latest infrastructure & equipment	2.Shortage of Administrative/ Supporting staff
3. Labs. spread over in different parts of the country – in RTI's	3. Hostel & Mess facility
4. Specialisation on Regional aspects	4.No minimum tenure of posting fixed for head of the Institute
5. Specialisation in RS & GIS	5. Present 3 year tenure of core faculty insufficient
	6.Insufficient capacity to train large number of geoscientists
	7. Inadequate exclusive centralized state-of-art laboratory facility for R&D

Opportunities

Threats

1. Emerge as leader in providing training in earth related studies in any discipline.	1. Dwindling resource of experienced Officers/ Faculty
2. Using the capability of conducting and guiding high end Research	2.Inadequate financial powers and autonomy in functioning
3. To build capacity in imparting training not only to earth scientists of GSI but also to those from state/central and other stakeholders in the field	3.No defined role of TI in HR development/deployment in GSI
4.Develop into an International Training Institute in Earth Science domain	

By overcoming the weaknesses and threats, the TI can convert the opportunities into strengths and forge ahead into a Centre of Excellence with planned activities and committed faculty by improving the infrastructure.

4. OBJECTIVES AND SCOPE OF THE INSTITUTION

4.1 THE SCOPE OF THE INSTITUTION:

i) Details about the Promoting Body:

GSITI is an integral part of GSI, which function as a Attached Department under the Administrative control of Ministry of Mines, Government of India.

The Geological Survey of India, which was established in 1851, is the premier Geoscientific organization of the Government of India. It is devoted to the charter of activities that include preparation and updating geological, geophysical and geochemical maps of the country on different scales; creation and maintenance of earth science database for the development of mineral-based industries; energy and environmental resources; conducting research in earth sciences; dissemination of knowledge for effective management of the system and to reduce risk to life and property from geological hazards.

GSI has played a lead role in identification and exploration of various mineral resources for providing a strong industrial base to the country in its economic growth in core sectors like steel, cement, fertilizers, chemicals, power, aluminum, coal and base metals.

ii) Details about the Institution:

The Geological Survey of India Training Institute (GSITI) established in 1976. It has its headquarters at Hyderabad. The Institute has six Regional Training Institutes one each at the regional level and eight field training centres which are theme specific and are specialized in respect of the local geology apart from the specialized divisions such as Photo Geology and Remote Sensing (PGRS), Geophysics, and the Centre for Geoinformation Management Training (CGMT). The training modules are designed with focus on fundamentals and applied aspects of Geoscience viz., Geology, Geophysics, chemistry, Natural Hazards, Remote Sensing and Geoinformatics for Disaster Management and DST sponsored training courses to cater to the needs of the Universities (faculty members and research scholars), sister organizations and other outside agencies.

GSITI has trained more than 12700 geoscientists in 640 courses in various disciplines of earth sciences. It has also conducted DST and ISRO sponsored courses for the benefit of the research scholars and faculty members from various Universities and Institutes. GSITI has conducted courses in digital map making in collaboration with ITC, the Netherlands, in its state-of-the-art laboratory. It has the privilege of training from time to time participants from ESCAP and SAARC countries and also from various public and private sector organizations and State DGMs.

Presently the training needs of GSI, and to some extent other Institutions, are met by the Geological Survey of India Training Institute (GSITI). The training institute is not only capable of providing basic, refresher or capsule courses for in-service geoscientists of GSI and to other earthscience related departments/ organisations/universities in the country but also to function in a modest way as a training facility for geoscientists of other countries as well.

4.2 OBJECTIVE OF THE INSTITUTE:

Recently, the High Powered Committee recommended that the **GSITI** should be developed into a ‘**Centre of Excellence**’ for providing high quality cutting edge training/knowledge delivery in the country with status of a Degree awarding Institute. With this in view, GSITI aims to enlarge its scope and develop into full fledged training institute providing in service training to GSI own scientists and conduct training programmes specific to industry, academia and society and award diplomas / degrees on the successful completion of the training programmes conducted by the institute.

GSITI can provide a blend of academic and professional training for students/professionals of Geoscience to enable the use of state of the art techniques of exploration, Geology, Geophysics, Chemistry, Natural Hazards, Remote Sensing and Geoinformatics for Disaster Management; not only to promote research and development but also to simultaneously establish appropriate educational and training facilities to meet the manpower requirements of the mineral industry.

The objective and policy of the proposed institution (GSITI) is in broad conformity with the National Training Policy of Government of India:

1. Meeting the gap between academic knowledge and field practices, particularly of newly inducted geoscientists, to create efficiency.
2. Knowledge enhancement by exposing practicing geoscientists to new developments in fields related to their specialization, to create excellence.
3. Knowledge pooling by enabling direct or indirect interaction amongst related fields, to create synergy.
4. To establish appropriate educational and training facilities for human resources development to meet the manpower requirements of the mineral industry.
5. To prioritize Research & Development work in the mineral sector related to exploration techniques, modernization of field/sampling equipments and beneficiation.
6. To promote use of information technology in Geoscientific activity, develop Geoinformatics with a strong spatial and attribute database.
7. To help in developing a framework and methodology for promoting sustainable development strategies (including optimum land use) through best use of Geoscientific data gathered in the course of survey and exploration by GSI and other Geoscientific organizations in the country.
8. To promote and prioritize research in the field of fundamental and applied Geosciences (Geology, Geophysics, Geochemistry, Geoinformatics).
9. To become a Diploma/Degree awarding Institute.

5. GOVERNANCE AND ACADEMIC & ADMINISTRATIVE MANAGEMENT

The existing training infrastructure of Training Institute and six Regional Training Institutes and nine field training centers with comprehensive and modern training facilities, with lab and computer support is capable of conducting Diploma/Degree courses. GSI will also plan out the curriculum and ensure development of resource persons and training material accordingly. **Clearly this will require a management mechanism that can envision the training needs with the overall objective of sectoral capacity building.**

5.1 TRAINING ADVISORY COMMITTEE

The 'Training Advisory Committee' headed by the Director General and comprising the heads of Regions and Wings (for the present) is in place to develop, implement and monitor the new approach to training services.

5.2 TRAINING POLICY COORDINATION COMMITTEE:

In view of the fact that the training activity is being vastly expanded to cover all stakeholder organizations, in addition to the Training Advisory Committee, there is a Training Policy Coordination Committee (TPCC) chaired by Secretary, Mines for the overall policy and annual strategy.

The TPCC comprise:-

- ❖ Secretary, Mines
- ❖ Additional Secretary/Joint Secretary, Mines
- ❖ JS & FA, Mines
- ❖ Director General, GSI
- ❖ DDG, GSITI
- ❖ Addl. DG (Support System-III (Science Policy)
- ❖ Representatives of Ministries of Earth Science and S&T *
- ❖ Representative of Ministry of HRD*
- ❖ Representative of Ministry of DoPT*
- ❖ Representative from AICTE
- ❖ Secretary, Mining & Geology of two State Governments (to be nominated each year).

* *Not below the rank of Joint Secretary*

The TPPC meets once a year to review training activities of Training Mission, approve policy and strategy initiatives.

5.3 SOURCES OF FINANCING OF CAPITAL AND OPERATING EXPENDITURE

The finances to run the GSI TI are available as per the budget allotment of GSI. Since GSITI is a government department, the expenditure overheads are borne by the government, as per the commitment of the government to spread education. The student fees would be nominal only to meet certain expenditure of consumables. GSITI is not an organization for profit, nor it intends recovering its operational costs from the student fees.



6. REGIONAL TRAINING INSTITUTES AND FIELD TRAINING CENTRES

In keeping with the hybrid matrix principle, the GSITI would house the Training Mission, and would be responsible for overall Training policy and coordination and programme goals. The GSITI would conduct the Induction Course for GSI Geoscientists, International Courses, and Training of Trainers Courses for Regional Institutes and State Training Institutions and specialized courses, drawing on Regional Institute resources to the extent of the Regional specialization mentioned above.

The Regional Institutes would conduct short-term courses (generally one week or less) for Regional GSI geoscientists, State Government geoscientists and courses on the regional specialization. The Annual Training Calendar for the Training Mission would be finalized by GSITI in its Training Advisory Committee for both its own programmes and Regional programmes factoring in State DGM requirements also, and placed in the CGPB for final approval.

The Field Training Centres would function under the Regional Institute rather than GSITI in order to have better management control. Just as each FTC has a specialized function (dependent on the Regional geology) each Regional Training Institute must develop a range of specializations, based on its regional presence, and backed by well-equipped laboratories and specialized Geoscientists of the Region.

The Training Advisory Committee headed by the Director General, GSI may from time to time recommend creation of additional Field Training Centres for specific subjects.

The Regional Institute Calendar will be prepared on the basis of SGPB inputs, regarding having needs of State geoscientists. Regional training need assessments and GSITI general directions. Each Regional Institute should run at least one course a year specially catering to State Government geoscientists of the Region, and courses on its regional specialization should be open to State Geoscientists so that they too can develop parallel capabilities to some extent, particularly on region specific issues.

Each Regional Institute will develop linkages with Central and State Geoscientific Institutions and Universities located within the Region or having specialization related to the Region and offer training services tailored to their requirements. Similarly, the Regional Institute shall endeavor to develop resource persons in such institutions to help run its training programmes. The Institutions who are part of CGPB and its Committees are the obvious first candidates in this respect.

GSITI will to develop a policy, and the Regional Institutes will develop the corresponding capability, of providing suitable training programmes on specific issues for M. Sc. and Ph. D. students.

7. ACADEMIC PHILOSOPHY AND TRAINING PROGRAMMES

The training programmes of GSI TI mainly orienting the new recruits in geoscientific streams to professionalism and a periodic exposure to latest developments in the field of earthsciences to their scientists. Training courses are fashioned to equip the geoscientists for effective application in their quest for earth resource evaluation and management by covering basic aspects, refresher types and advanced versions in different branches of geosciences concomitant with the latest development in science and technology. A detailed calendar outlining the training schedule of the training programmes each year is brought out by GSI TI and made available to the user community through various publicity media.

7.1 AMENITIES WITH GSI:

Geological Survey of India is endowed with latest and upto date scientific equipments/instruments scattered throughout in the different regional headquarters which are used to impart the training at the level of international standards.

- ❖ Photogeological and Remotesensing laboratories in GSI have modern gadgets to utilise remotely sensed data in digital and analogue form
- ❖ Geotechnical laboratories have the potential to generate data on physical properties of rock, soil, coarse and fine aggregates etc. Laser Particle size Analyzer (Mavern make) and Servo controlled compression testing machine are recently inducted in the laboratory
- ❖ The chemical laboratory are equipped with the state-of-the-art instruments like WDXRF, ICP-MS, DMA-80, GF-AAS, HPLC, ICP-AES, CHNS etc.
- ❖ Mineral physics laboratory has single crystal x-ray diffractometer, thermal analyzer, infrared spectrometer
- ❖ Scanning Electron Microscope with EDX and Electron Probe Micro Analyser, VG54R Thermal Ionisation Mass Spectrometer, Sequential XRF Spectrometer, Gas

Source Mass Spectrometer, Radiocarbon dating Lab. And Optically Stimulated Luminescence dating instruments are available.

- ❖ Geoscientific data centre distributed at all the Regional Headquarters of GSI are equipped with the latest hardware and software linked through LAN which will transmit data using WAN shortly

7.2 ACCREDITION:

GSI Training Institute would strive to get the accreditation from AICTE for its proposed Diploma/Degree courses and take up R & D projects which will lead to the award of doctoral degrees. The GSI may institute Fellowships for research either on its own or arrange through other Agencies and Government organizations.

7.3 GSITI TRAINING PROGRAMMES:

i) Induction Level courses:

Training Institute conducts regularly Induction level course for fresh recruits (geologists) joining GSI. Depending upon the demand induction level course is conducted for fresh recruits in Geophysics and Chemistry streams. GSI is planning to induct 300 geologist, geophysicist and chemists to attain the projected strength of geologist, geophysicists and chemists respectively per year. During the FS 2009-10, it is planned to conduct three Induction level courses for geologists, one each for geophysicists and chemists due to induction of officers in these streams. These **induction level courses** are traditionally called **Orientation courses**.

Orientation course for Geologists: The course scheduled for 12 months is planned in three phases. The first and second phases consist of training at seven training centres with a mid term break of 4 weeks. In these centres modules in mapping in sedimentary, igneous and metamorphic terrains and in Himalayas, mineral exploration, engineering geology, landslide hazard zonation, Quaternary geology, Photogeology & Remote Sensing and Laboratory techniques covering fundamental aspects of geology are covered. In addition trainees are apprised about the structure and functioning of the organization, office procedures, conduct rules etc. In the third phase the trainees will have to complete a project work involving one of the modules they have learnt, which is related to their future assignments at the place of their posting. After completion of the project the trainees have to submit report, take course ending examination for becoming eligible to obtain certificate of completion of course.

Orientation course for Geophysicists: The course scheduled for 4 months imparts theoretical and practical training in various geophysical methods, like gravity, magnetic, electrical, seismic. At the end, the trainees have to be associated with a running project of GSI in any region for over a month, and have to submit a comprehensive report with data, maps and interpretation.

Orientation course for Chemists: The course is scheduled for three and half months which includes theoretical and practical aspects of various analytical methods using instruments like AAS, XRF, ICP-MS, Fire assay as well as classical methods.

ii) Refresher courses: Refresher courses are designed for those officers who have joined a specialized division on transfer or those working in the same area of work for five years but have not worked for more than 10 years. The specialized areas include thematic mapping, exploration, engineering geology, petrological techniques, RS and GIS etc.

iii) Advance courses: Advance courses are designed for those officers who are working in a specialised area of work for more than ten years and require sophistication in their field of activity. The trainings are given in exploration, engineering geology, petrological and other sophisticated equipment techniques, certain aspects of engineering geology etc. International exposure to the officers who have excelled in these fields is required.

iv) Management Courses: The scientific and technical officers of JAG level are given administrative and project management training. Similarly, SAG level officers who are to head regions and Missions are given exposure in fiscal control, management and legal dispensation. Collaboration with IIMs and institutes like Administrative Staff College of India (ASCI) and Dr. Marri Chenna Reddy Human Resource Development Institute (MCRHRDI) in training the senior officers of the department shall be planned. One of these institutes may be requested to conduct Training Needs Assessment (TNA) analysis for proper programming of the training courses.

In order to tone up the administrative and managerial skills of geoscientists, it will be imperative to have trainings at different levels. In this regard, Lal Bahadur Shastri National Academy of Administration, Musoorie and other such institutes namely ASCI and MCRHRDI etc would be approached for such training purposes etc.

v) Capsule courses for DGMs: The requirement of the state DGMs are to be taken into account while formulating the capsule courses. The field and laboratory training modules that are being conducted at various FTCs and RTIs are to be classified into small modules of one week duration. Depending on requirement, such modules can be combined logically and given as training programmes for the DGMs. One such training module was prepared for the Karnataka State DGM, consisting of mapping, exploration and landslides study at Chitradurga FTC.

vi) Laboratory based Trainings in RTIs: Training programmes are being planned for training technicians and geoscientists handling or utilizing technical and laboratory equipment available in the regions, particularly newly acquired sophisticated equipment.

In the last few years several programmes were conducted for chemists and mineral physicists in handling of various modern equipments.

7.4 ACADEMIC FUTURISTIC PROGRAMMES:

GSITI aims to introduce postgraduate diploma/degree courses in a phased manner once the GSITI acquires Diploma/ Degree awarding status.

A beginning:

At the beginning the GSI TI proposes to conduct following short term Diploma/M.Phil courses each for a batch of 30 M. Sc students for a period of one year beginning 1st July, 2010:

- ❖ Mineral exploration
- ❖ Engineering geology
- ❖ Remote Sensing and Geographic Information System.
- ❖ Geoenvironmental and Natural Hazards.

GSITI will also enroll students for PhD degrees

Consolidation:

Subsequently, GSI TI would introduce courses of two year duration with effect from 2012 Viz.,

- i. M.Tech in Engineering Geology
- ii. M.Tech in Mapping and Mineral Exploration
- iii. M. Tech in Remote Sensing and Geographic Information System
- iv. M.Tech in Geoenvironmental and Natural Hazards.

A full fledged Institute:

The GSITI shall start functioning as a full fledged institute with effect from the year 2015 with State-of-Art infrastructure for conducting M. Tech courses in

- i. M.Tech in Geoinformatics
- ii. M.Tech in Mapping and Mineral Exploration
- iii. M. Tech in Remote Sensing and Geographic Information System
- iv. M.Tech in Geophysics.
- v. M.Tech in Geochemistry.
- vi. M.Tech in Engineering Geology

7.5 E-LEARNING:

Training Institute will introduce E-learning basic courses in GSI using the concept of **distance learning**. The envisaged functionality will be as follows:

User's perspective: User can be any GSI employee. A link for e-learning will be available on the Training Institute Homepage of GSI portal. Interested employees can log on to the Portal and avail that link to enrol for the e-learning course of their choice. Once enrolled / registered he will be able to download documents pertaining to the course for offline study and shall appear for online objective test/s within a stipulated period. Online courses can be of more than one level; user has to successfully complete the lower level tests to move on to further higher. On successful completion of the test/s he will be awarded a virtual certificate. The user can at any time view the status of his/her e-learning progress.

Administrator's perspective: Administrator will be a designated officer from GSITI. His job will be as follows:

- Devise courses, categories and their durations
- Create / Collate course material as per categories (downloadable documents and presentations for offline reading) and upload them
- Create / collate question bank for the online tests as per categories
- Keep track of enrolled users / courses enrolled / tests undertaken / certificates issued etc

7.6 COURSES FOR MSc AND PhD STUDENTS:

In order to strengthen the Human Resource position in the Department to discharge its assigned /envisaged programmes effectively, GSITI proposes to train and deploy M. Sc/M. Tech pass out from universities in the ongoing projects of Geological Survey of India on contract basis on year to year basis. These students will be imparted training for a period of 45 days in the geologic domain to which they are going to be deployed. Such a scheme will help M. Sc/ M. Tech pass outs in effectively utilizing the gap period after their acquiring degree and getting employment which at least in case of Geological Survey of India is almost two to three years.

GSITI will provide small training programmes for MSc. and PhD. students for specific field activities such as sample collections and ground-truthing; and deployed in ground work for NGCM or GMM or HSM field work.

The post Graduate / PhD students who enroll themselves for such an assignment will be provided a lump sum amount equivalent to the salary of JTS level officer (On approval of Govt.).

They would be extended all the logistic facilities free of cost as those being availed by the regular officer.

They will be attached with the officer/ Field party engaged in National Geochemical Mapping Programme, Gravity Magnetic Mapping, Hyper Spectral Mapping etc work.

7.7 LINKAGES IN TECHNICAL EDUCATION

GSITI and International Institute for Geo-Information Science And Earth Observation (ITC), Enschede, the Netherlands together with Maastricht School of Management (MSM) and Association of Exploration geoscientists (AEG), had entered into a memorandum of Understanding on 30th August, 1999 for a period of three years, in order to have a formal framework to jointly implement a project to strengthen the capability for application of Digital methods in geo-scientific institutions in India and neighbouring countries.

ITC established in 1950 by the Government of the Netherlands for education, research and advisory services in the application of earth observation techniques and the use of earth observations for natural resources assessment, rural and urban planning, monitoring and management, including the establishment of geo-information systems and management of geo-information.

Collaboration with the ITC, the Netherlands has been very useful not only for the GSI but many other associated organizations in imparting training to geoscientists. Considering the significant achievement of the project, GSITI and ITC are desirous of continuing the collaboration and entering in a new Memorandum of Understanding for a period of five (5) years, i.e., till July, 2012, by mutual consent,

GSI TI will explore the possibility of collaboration with similar Institutions abroad in USA, Canada, Australia, France and Japan to get the trained manpower in thrust areas of seismotectonics, mineral exploration, Hyperspectral mapping, geochemical mapping, environmental sciences including Medical Geology , disaster management, etc.

8. HUMAN RESOURCE POSITION

8.1 FACULTY STATUS:

GSI on the whole is facing a huge human resource crunch in undertaking geological investigations for fulfilling the countries requirement. There is a huge gap in availability of Geo scientific human resource particularly at the lower and middle levels. This shortage has its impact on Training Institute as well. Over the years the institute has been curtailing its training programmes. GSITI has a minimal core faculty at present which needs to be augmented soon to meet the growing demand of field training of new incumbents to GSI as well as the growing demand from State Geology Departments.

Further GSITI aspire to become a diploma/ degree-awarding Institute apart from providing refresher or capsule courses for in-service geoscientists of GSI, State DGMs, and other Central Institutions. The institution is also gearing to function as an internationally reputed training facility for private sector and geoscientists of other countries.

The status of Faculty is as follows:

Sr.No	Division/Post	Designation	Location	Strength
1	Head of the Institution	Deputy Director General	Hyderabad	1
2	Head of Tech. Cordination	Director	Hyderabad	1
3	Technical Coordination cell:	Geologist(Sr)	Hyderabad	4
4	Technical Coordination cell:	Senior Technical Assistant	Hyderabad	1
5	Hyderabad Centre	Director	Hyderabad	1
6	Hyderabad Centre	Geologist (Sr)	Hyderabad	2
7	CGMT	Director*	Hyderabad	1
8	CGMT	Geologist(Sr)	Hyderabad	3
9	Geophysics	Director	Hyderabad	1
10	Geophysics	Geophysicist(Sr)	Hyderabad	1
11	PGRS	Director*	Hyderabad	1

12	PGRS	Geologist (Sr)	Hyderabad	2
13	Chitradurga Centre	Director	Bangalore	1
14	Chitradurga Centre	Geologist (Sr.)	Bangalore	1
15	Lucknow Centre	Director		2\$
16	Lucknow Centre	Geologist (Sr.)		2
17	Raipur Centre	Director		1
18	Raipur Centre	Geologist(Sr)		1
19	Ranchi Centre	Director		1
20		Geologist (Sr.)		1
21	Zawar Centre	Director	Jaipur	1
22	Zawar Centre	Geologist(Sr)	Jaipur	2
23	Zawar Centre	Chemist (Sr.)	Jaipur	1

*Additional Charge \$ one under transfer. Transfer not effected due to court stay order

8.2 CRITICAL AREAS:

Based on the SWOT analysis and details given in the preceding paragraphs following critical areas require immediate attention to make GSITI a Centre of Excellence:

- Strengthening in terms of Manpower
- Strengthening / Up gradation & Replacement of Training Infrastructure.
- Budget / Finances required
- Strategy for the conduct of Training Programmes
- Development of Faculty
- Development of Modules / Contents
- Research & Documentation & Development of Reading Material
- Monitoring

To overcome the weaknesses and threats the following action plan is proposed.

Shortage faculty: The HPC recommended sufficient number of faculty for TI. But it can be achieved only over a period of 7 to 8 years. Until that time, it is planned to increase the strength of TI progressively.

Due to the shift in the policy of MoM, there is surge in the number of participants from sister organisations and also the number of programmes in the training calendar for F.S. 2009-10 have doubled. This has put a lot of pressure on the faculty starved TI.

The process of selection of faculty for the year 2009-10 has been completed, and the proposals are with the DG, GSI for consideration and posting. Through TOT programmes, some faculty requirement can be met.

The Regions and Mission heads were also requested to consider training as part of their activity and provide the services of guest faculty for the scheduled programmes.

Shortage of supporting staff: Streamlining the office procedures, good relations with PAO, and use of PORTAL services may help to come out of this shortage feeling.

Hostel & Mess facility: Though MoM has made the course fees free to other Govt. Dept., it is still the hotel stay and related expenditure, which is deterring the in-flow of the trainees from the mineral sector for training.

Though the hostel and mess facility in TI Hqrs may be available in a couple of years, the same facilities are being planned at RTI level. Accommodation in guest houses / unoccupied quarters are being transferred from regions to RTIs so that the space is used as hostels until proper plans are made to construct them.

Minimum tenure of posting for Head of the Institute: The tenure of the Head of the Institute is vital for efficiently running any National level Academy or Institute. The tenure of the HOD of GSITI is proposed to be maintained at last three years so that the programmes are properly planned.

Capacity to train large number of geoscientists: As the department is planning to induct large number of geoscientists, several other organisations are also expected to do the same as per the NMP-2008. To meet their training needs, shortage of faculty and shortage of facilities are the hurdles. Shortage of facilities was discussed at 4 (a). Regarding facilities, it is necessary to increase the number of FTC with parallel specializations. So that parallel batches are trained on the same subject at two different centres.

The other option is to run the same course throughout the year at one FTC for the benefit of the trainees with minimum faculty (core faculty) without depending upon the guest faculty.

The centres are to be re-identified for their specialization. A trainee can go from one centre to another centre at his convenience and complete the course (OCG) before the stipulated time. The freedom of what to learn when is given to the trainee. For this the centres should run courses on fixed dates every year. Basic/Refresher/Advanced courses can be planned before hand and the faculty who impart training in these courses should be different and self sufficient.

The stay facilities at the FTCs should be increased for at least to accommodate another 15 trainees.

Exclusive centralized state-of-the-art Lab facilities for R & D : This is a futuristic plan which may be come a reality in another 5 years when the Institute also starts conducting Bachelor and Master degree courses and also engaged in Research activities.

At any given instance, the TI can't be segregated from the GSI. Hence, the facilities that are available at SR are taken as available for TI. The facilities that are not available in SR are to be planned, procured installed and maintained.

Role of TI in HRD: Presently TI is acting independent of HRD. Training as an essential input in Human Resource development. The career progression of officers, and training should be interlinked as discussed in (2).

8.3 ACTION PLAN FOR IMPLEMENTATION:

The GSITI will strive

1. To enable and facilitate for providing objective, impartial and up-to-date geological expertise and geoscientific information of all kinds.
2. To develop and continually enhance GSI's core competence through continued accretion, management, co-ordination.
3. To maintain a leadership role in the geological field and develop partnerships with Central, State and other institutions, to help create enhanced executional capability and capacity in the field of geology in furtherance of GSI's Vision and the objectives.
4. To conduct multidisciplinary as well as fundamental Geoscientific research and studies (including Geotechnical investigations, physical, chemical and biological hazard investigations, climate change geostudies, paleogeostudies etc.), and foster partnerships with State and Central research and academic institutions for the purpose.
5. To actively participate in international collaborative projects to improve our understanding of the earth and its ecosystem and its geology, including studies related to tectonics, global warming and climate change, and Polar studies.
6. To generally advance the cause of the geoscience by documentation, propagation, archiving and education, including creation and management of museums, monuments and parks, archives, libraries and other facilities for use of students, researchers and the public. In particular constantly endeavour to popularize Geoscience at school and university levels through production and distribution high quality audio-visual and printed material, and through the medium of the Internet. Also hold exhibitions and special events to bring geoscientific concepts before the public

Plan of Action

S.No	Activity/Training	2010	2011	2012	2013	2014	2015
1	Degree / Diploma awarding institute-AICTE recognition and affiliation with OU/JNTU/HCU						
2	GSITI centre at Hyderabad- building completion and infrastructure inspection and full fledged degree/diploma awarding institute						
3	Short term diploma course in GIS and Remote sensing, Mineral exploration, Petrography, Engineering Geology						
3	E-learning& distance education						
4	Two year course in Geoinformatics and Mapping & mineral exploration						
5	Research and Development activity leading to doctoral and post doctoral degrees						

8.4 PROJECTION OF PROGRAMMES:

Development plan for the proposed institution spelling out its growth plan over the first 10-year period after its establishment in terms of the phasing of academic programmes, increase in student intake and the introduction of postgraduate and doctoral programmes, if any, and the time schedule for the stage-wise development of the academic infrastructure and other support facilities, including student amenities, such as hostel for students, sports and recreational facilities, and recruitment of faculty are all in anvil.

The training programmes of GSI TI are structured field season wise (October to September) as per the practice in GSI. The activities of TI are brought out in the form of annual calendar. The programmes projected for the next ten years are given below:

Geological Survey of India

* Future Programmes

8.5 DEVELOPMENT OF FACULTY:

The faculty In GSITI is primarily required for orientation, short term and courses that are proposed to be conducted at the Geological Survey of India Training Institute and Regional Training Institutes. The core faculty would also be required once it gets accreditation from AICTE for conducting professional courses. This requirement, at present, is being met from already strained geo scientific human resource having training aptitude available in the different regions of GSI and to some extent from retired GSI scientists.

GSITI will have a few posts to enable geoscientists from Central Institutions and academia to join GSI on deputation. Such an arrangement will ensure the infusion of a well moderated academic environment in GSITI, facilitate periodic scientific churning and build up the long term reputation of GSITI in case it is able to attract scientists of standing onto its faculty. GSITI will have a very liberal policy for inviting guest faculty by providing adequate facilities including airfare, a substantial honorarium, comfortable stay facilities, etc. Small additional perquisites such as local transport etc. should be provisioned since the quality of guest faculty is the prime objective.

GSITI is creating a data bank of guest faculty which it can share with sister organizations as this would further increase the pool of resources. In order to assess and improve quality, GSITI will create two or three classes of guest faculty and have a graded honorarium system as per DOPT norms for National Institutes.. GSITI will be proactive in developing its internal training resources, even if it is at some cost to its ongoing programmes, because the long term positive effect of such resource development far outweighs minor current performance shortfalls. Accordingly, GSITI will ensure that at the Regional Institute Level, there is a fair mix of guest faculty and Regional in-house resources. Regional Institutes would have minimal core faculty in any case, and through a system of performance appraisal, the Regional Institutes will grade local guest faculty as well as GSI resource persons and identify their resource areas. This will help increase the supply of higher quality resource persons to the GSITI. Retired GSI Geoscientists will be identified on a systematic basis and those with capability will be motivated to contribute to the continued growth of their parent Institutions. It will be ensured that guest faculty at regional level, whether from local outside institutions or regions or retired GSI geoscientists, is adequately remunerated for their contribution, and they will be provided transport and stay arrangements at GSI's cost.

The faculty and staff demand will be met by

A) Full time faculty (Three number) for each course to be outsourced

- i) On Deputation** Basis from Central/State/University as per the existing Govt. Rules.
- ii) By Reemployment** of two retired personnel for each course initially for two years; extendable for another one year. Emoluments as per existing Government of India rules.
- iii) On Contractual Basis**

B) Short term requirements for the purpose of class room teaching and field work will be met by deploying eminent geoscientists

i) From GSI,

ii) Universities and

iii) Other State and Central Government Departments as Guest Faculty.

Remuneration to Post Doctoral Students:

The enrolled Post Doctoral students will be provided scholarship as per the norms fixed by CSIR.

8.6 FACULTY TRAINING:

The success of a training institute to a large extent depends upon the training programmes and the competency of the trainers. Having highly proficient trainers and the availability of latest infrastructure is absolutely necessary. Therefore, the GSI TI would take up training programmes for the faculty under the programme of ‘Training for the trainers’ (TOT) in the specially designed programmes such as Presentations Skills, Direct Trainers Skills, Designing of Training, Evaluation of Training, etc. Periodic opportunities must be provided for upgradation of knowledge and skills of the faculty in the institutes of excellence, either within the country and/or outside. The faculty comprising the core and panel members of GSI forming the resource pool would be exposed to advanced training programmes by leading institutes in the national as well as international institutes to make them effective trainers.

Manpower requirement for GSI Training Institute

Sl. No	Institute	DDG	Director/Suptdg	Geo-Scientist	STS@ GP/C
1	Mission – HQ Hyderabad	1	8*	24	5GP,3 C&-5E
2	Zawar FTC	-	1	5	-
3	Ranchi FTC	-	1	5	-
4	Raipur FTC	-	1	5	-
5	Chitradurga FTC	-	1	5	-
6	Lucknow FTC	-	1	5	-
7	** Aizwal FTC	-	1	5	-
8	NR Institute	-	5	15	3C
9	ER Institute	-	1		3C
10	SR Institute	-	8	21	3C
11	WR Institute	-	#3	9	3C
12	CR Institute	-	1	5	3C
13	NER Institute	-	1	5	3C
Total		1	34	112	5GP,21C-5 E

*: 2 JAG officers for Planning (internal and external programmes);2 JAG officers for coordinating (internal and external prog.).2 JAG for Administrative and Staff training and 2 JAG officers for Administration of Training institute.

**: New proposed FTC for Tertiary Geology/Landslide hazard /Geomorphological studies.

_.: For supervising and conducting training programmes in Fundamental Geoscience, Remote Sensing, Marine Geology, Geoinformatics, Geophysics etc

_.: For supervising and conducting training programmes in Engineering Geology, Environmental geology, Landslide hazards,

Geomorphological mapping etc,

#: Training in Mineral Exploration.

@: STS officers experienced in respective field.

_.: Training institutes adjunct to regional offices will conduct Lab related trainings for Officers and staff and also administrative training for officers and staff. These centres will utilize guest faculty from within the region.

Faculty requirement over 5 to 10 years period – Annual increase :

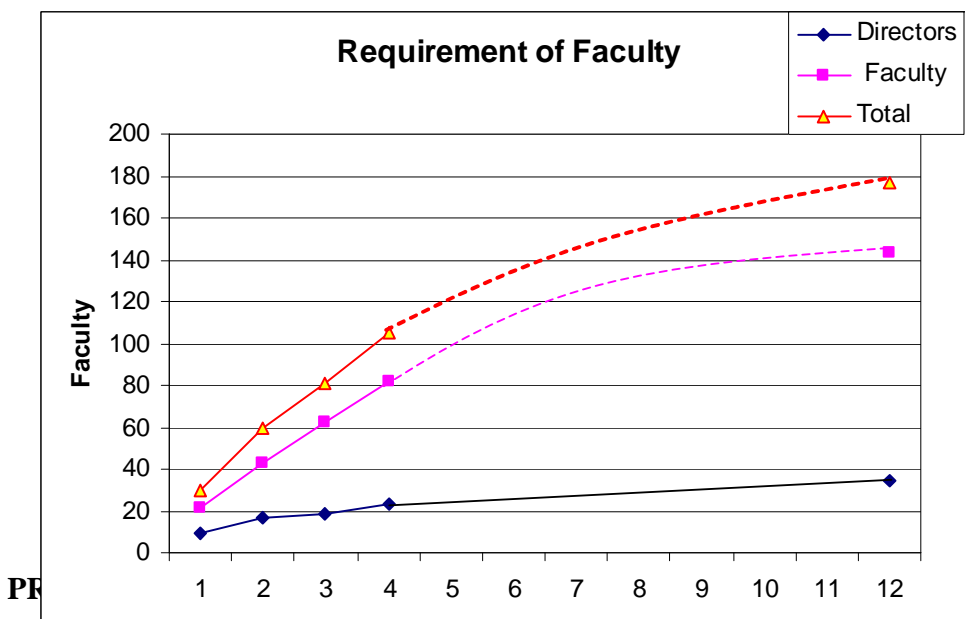
Estimation of recruitment of faculty for next 10 years depends on the growth of the Institute in multi direction.

- TI has to cater to the training needs of its own organisation. GSI, where the induction of geoscientists is expected to be 300 per year for the next 6 to 7 years
- TI has similarly to cater to the training needs of the sister organisations as per NMP-2008
- TI has to diversify its activities into a degree awarding Institute
- TI has to plan for providing training to the University students

The training requirements of students, individuals, industry and the govt. departments is going to raise exponentially in the first 5 years and thereafter at steady and slow rate.

At present, the strength of faculty in TI is 30. The planned requirement for 2009-10 is 60.

The faculty requirement in the nest ten years is depicted in the graph



Deployment of Group C & D Employees vis-à-vis Requirement

Sl.No.	Name of the Post	Sanctioned Strength	Existing Strength	No. of posts Vacant	Required Strength
GROUP – C					
1.	Superintendent	04	03	01	10
2.	Assistant	06	06	-	10
3.	U.D.C	08	07	01	10
4.	L.D.C	11	08	03	16
5.	Steno-Grade-I	01	01	-	01
6.	Steno-Grade-II	02	02	-	02
7.	Steno-Grade-III	02	01	01	02
8.	Stores Suptd(Tech.)	01	01	-	08
9.	Store Keeper(Tech.)	02	-	02	08
10.	Asst.SK(Tech.)	01	-	01	08
11.	Sr.Hindi Translator	01	01	-	01
12.	Jr.Hindi Translator	02	-	02	02
13.	S.T.A (DO)	01	01	-	01
14.	J.T.A. (DO)	03	02	01	03
15.	Driver-Special Grade	02	02	-	22
16.	Driver-Grade- I	13	13	-	
17.	Driver-Grade-II	11	09	02	
18.	Driver-Ordinary Grade	10	04	06	
19.	Caretaker	-	-	-	10
	TOTAL	81	61	20	114
Group – D					
1.	Messenger	15	14	01	27
2.	Cleaner	32	26	06	8
3.	Durwan	30	23	07	45
4.	Safaiwala	21	20	01	45
5.	Mali	01	01	-	15
	TOTAL	99	84	15	140

8.7 DEVELOPMENT OF MODULES / CONTENTS:

GSITI over the years has developed course modules of the courses being conducted under its aegis. These are under revision keeping in the changed geo science scenario to suit the specific demand of outside organizations and the thrust areas of activities of the

Geological Survey of India. The course modules will be designed with the help of eminent geoscientists / institutes. Once finalized the Modules details will be available on GSI Portal.

8.8 RESEARCH & DOCUMENTATION:

Education (training) and research go hand in hand. GSI during the course of geological mapping of the country and through its exploration activities has collected huge amount of baseline data. The data collected over the years needs now to be synthesized to launch successor programmes. GSI now needs to take up high end fundamental research in line with the developed Nations so as to play vital role in resolving the mysteries of the mother earth and celestial bodies.

8.9 MONITORING & COORDINATION:

GSITI will have a three tier monitoring and coordination of its Training & research activities;

- a) GSITI own internal monitoring Mechanism
- b) Training Advisory Committee
- c) Training Policy Coordination Committee

Monitoring of training will include evaluation of training programmes, evaluation of trainees, training needs assessment and feed back on proper deployment of trained personnel. A small group specializing in Technical Audit shall be constituted by DDG, GSITI for evaluating the training programmes vis-à-vis benefits. The Technical Audit Team shall submit periodical reports for improvement and enhancement of knowledge transfer.

The National Training Policy envisages that there must be an institutionalised arrangement within each organisation for overseeing the training function as an integral part of the Personnel Management System. The concept of a 'Training Manager', whose job will be to ensure an integrated approach to Training, has been suggested. The training Manager will be actively involved in the series of activities culminating in organisation of training programmes, such as analysis of training requirements, the design of the training programme, the selection of appropriate training institutions and evaluation of training. Most significantly, he will advise the top management about the kind of interventions, both training and non-training, required for overcoming specific problems of performance. The Training Manager will act as an interface between the Department and Training Institution on one hand and between Department and DOP&T on the other.

The **Addl. DG (Support System-III (Science Policy))** shall be the **Training Manager** in case of GSITI.

8.10 CAPACITY BUILDING:

GSITI with the approval of Training Advisory Committee (TAC) will establish more FTCs towards capacity building in a phased manner to accommodate new incumbents of GSI and participants from other sister organizations in its Orientation Course for Geoscientists. Each FTC will have infrastructural facilities to accommodate a batch of 30 trainees at any given time. Some of the new FTCs which will be established shall be parallel in activity with the existing ones specializing in similar subjects facilitating rotation of batches in the existing and the new FTCs. The remaining free time with the FTC will be utilized for running other conventional or new courses as the situation demands.

9. STRENGTHENING / UP GRADATION & REPLACEMENT OF TRAINING INFRASTRUCTURE.

9.1 CONCEPTUAL MASTER PLAN DEVELOPMENT FOR MAIN CAMPUS, REGIONAL TRAINING INSTITUTES AND FIELD TRAINING CENTRES

Recently, Ministry of Mines, Government of India, has approved construction of the GSI Training Institute complex at a cost of 35 crore rupees. The construction is underway and will be completed within two years. The institute complex shall have modern lecture halls, laboratories, centralized library, conference hall, faculty rooms etc with all *state-of-the-art* facilities apart from the administrative block, guest house and hostel for students with mess and other recreational provisions.

Regional Training Institutes (six nos.) located within the premises of GSI Regional Headquarters and occupying minimum of 3000 sq ft covered area will make use of infrastructural facilities of regions such as conference hall, lecture hall, geological, geophysical, chemical laboratories and audio visual aids required for conducting trainings.

Out of the eight Field training Centres identified to be operative during the GSI Field Season 2009-2010 Zawar, Raipur, Chitradurga have fairly good infrastructure and hostel facilities for imparting field training to 30 trainees at a time. The Field Training Centre at Kuju, Bihar is in possession of land and awaiting CPWD estimate for providing necessary infrastructure in the form of semi permanent pre-fabricated structures for office, field hostel, dinning hall, stores etc. Likewise, Bhimtal, Saketi, Kothegudem and Aizwal will be provided with the required infrastructure for conducting field training as soon as the land is acquired for the purpose.

The availability vis a vis requirement is given below:

GSITI/RTI/FTC	Location	Available	Required	Remarks
GSITI Headquarters	Hyderabad	45.49 Acres		
FTC Southern Region	Chitradurga	11.13 Acres		
FTC Southern Region	Kothagudem		10Acres	
RTI Central Region	Nagpur		3000sq ft	
FTC Central Region	Raipur	32Acres		
RTI Western Region		1000sq ft^	2000sq ft	^aprox
FTC Western Region	Zawar	16.01Acres		
RTI Eastern Region	Kolkata		3000sq ft	
FTC Eastern Region	Kuju	2.3 Acres		
RTI Northern Region		1000sq ft^	2000sq ft	
FTC Northern Region	Bhimtal		10Acres	
FTC Northern Region	Saketi		10Acres	
RTI Northeastern Region			3000sq ft	
FTC Northeastern Region	Aizwal		10 Acres	

9.2 LABORATORIES:

TOTAL

MODERNISATION PROJECTION PLAN (XI PLAN)

GSITI, Headquarters
FOR THE YEAR 2009-10

I. PETROLOGY LAB:

Table-1: Modified action plan

Sl.no	Description of stores	Qty	Estimated cost in lakhs	Present status	Funds required
01	Trinocular Microscopes	25 nos.	250	Tender stage-with the Controller of stores, Kolkata.	2009-10
02	Digital cameras	10	1.25	Sr.PAC approval was over on 9.11.09	2009-10
03	GPS instruments	30	8.5	Sr.PAC approval was over on 9.11.09	2009-10
04	Digital point counters	10	9	Sr.PAC approval was over on 9.11.09	2010-11/ 2009-10
05	One automated thin section and thin-cum polish section preparation machine system	1	95	Sr.PAC approval was over on 9.11.09	2010-11/ 2009-10
06	Triinocular stereo zoom petrological microscopes	5	30	Sr.PAC approval was over on 9.11.09	2010-11/ 2009-10
07	Advanced research trinocular polarising petrological microscope; transmitted and reflected light with digital camera having image	1	35	Sr.PAC approval was over on 9.11.09.	2010-11/ 2009-10

	processing software.				
08	Oil Immersion objectives for LEICA DMLP Microscope (Proprietary items)	3	6.15690	Indent placed	2009-10
09	Digital camera with video camera for filming	one	2	Yet to place indent	2009-10
10	Colour Xerox	1	3	Yet to place indent	2009-10
	TOTAL[@ Modified figure – earlier figure was 260.50 lacs- included new items from sl.no4 to 08 for financial year 2009-10.].		@439.9069		

Table: 2. The earlier proposed action plan for the financial year 2009-10.

Sl. No.	Description of Stores	Quantity	Estimated Cost in lakhs	Present status	Funds required
01	Trinocular Microscopes	25 Nos.	250.00	CPMC clearance. Awaited	2009-10
02	Digital Cameras	30 Nos.	2.50	Proposal stage	2009-10
03	GPS Instruments	15 Nos.	3.00	Proposal stage	2009-10
04	Digital Camera with Video camera And other Photo attachments for photography and filming	1 No.	2.00	Proposal stage	2009-10
05	Colour Xerox	1 Unit	3.00	Proposal stage	2009-10
	Total		260.50		

II. INFORMATION TECHNOLOGY.

Sl. No.	Description of Stores	Qty.	Estimated cost in lakhs	Present status	Funds required
1	Auto Desk Map Software	25 Licenses.	5.00	For approval with DG , GSI, Kolkata.	2009-10
2	Erdas Imagine & LPS Software	5 Licenses.	9.00	For approval with DG , GSI, Kolkata	2009-10
3	Arc GIS 9.3.1 Software	10 Licenses	27.00	For approval with DG , GSI, Kolkata	2009-10
4	Petrological Software (Igppt, Minpet ,geosoft etc)	one each	5.00	Proposal stage.	2009-10
5	High end server	1 Nos.	3.00	Proposal stage	2009-10
6	Laptops for the trainees at Hyderabad centre.	30 nos.	15.00	Proposal stage	2009-10
Total			64.00		

**GSITI Hyderabad
FOR THE YEAR 2010-11**

PETROLOGY LAB.

Sl. No.	Description of Stores	Quantity	Estimated cost in lakhs	Present status	Funds required
PETROLOGY LAB					
1	Point Counters	25 Nos.	20.00	Proposal stage	2010-11
2	Isodynamic Separator	1 No.	6.00	Proposal stage	2010-11
3	Pulverizer	1 No.	9.00	Proposal stage	2010-11
4	Lab Accessories (sample cutter 1 big & 1 small, Jaw crushers, Vacuum Chambers, Driers, Oven etc.)	One set	20.00	Proposal stage	2010-11
5	Digital Electronic Balance (4 digit advanced version)	2 Nos.	6.00	Proposal stage	2010-11
6	Advanced automatic Thin Section Preparation unit	1 No.	85.00	Proposal stage	2010-11
7	Fluid Inclusion apparatus. (Fourier Transform IR spectroscopy	1 No.	150.00	Proposal stage	2010-11
8	Ball mill (tungsten carbide)	1 No.	25.00	Proposal stage	2010-11
9	Powdering machine with Agate mortars (two bowels)	2 Nos.	20.00	Proposal stage	2010-11
10	Wilflay table	1 Unit	6.50	Proposal stage	2010-11
11	Seive shaker machine (Complete Set with motor)	1 Unit	3.50	Proposal stage	2010-11
12	Micro hardness determination Apparatus	2 Nos.	30.00	Proposal stage	2010-11
13	Reflectivity measurement apparatus (Photovoltaic cell)	2 Units	80.00	Proposal stage	2010-11
14	Universal stage	2 Units	10.00	Proposal stage	2010-11
15	RI Liquids of entire range	sets	2.00	Proposal stage	2010-11
16	Binocular stereo zoom microscopes (with photographic facility)	10 Nos.	40.00	Proposal stage	2010-11
17	Brunton compass.	50 Nos.	5.00	Proposal stage	2010-11
18	Geological Hammer.	50 Nos.	1.00	Proposal stage	2010-11
TOTAL			519.00		

Sl. No.	Description of Stores	Quantity	Estimated cost in lakhs	Present status	Funds required
LIBRARY					
19	Library books & journals	1 Unit	19.00	Proposal stage	2010-11
GEM LAB					
20	Raman Spectrophotometer (With spectral library)	1 Unit	150.00	Proposal stage	2010-11
21	Gem Identification instruments	1 Unit	25.00	Proposal stage	2010-11
PALAEONTOLOGY LAB					
22	Fossil Specimens & Reference fossils (As per requirements)	1 Unit	10.00	Proposal stage	2010-11
23	Fossil Development Centre	1 Unit	20.00	Proposal stage	2010-11
24	Transmitted phase Microscope with computer for Palaeontological studies with digital camera and computer	25 Nos.	100.00	Proposal stage	2010-11
25	Advanced Binocular reflected and Refracted Microscopes for paleontology.	2 Nos.	50.00	Proposal stage	2010-11
26	Computer dedicated Binocular Stereo Microscope with Camera	2 Nos.	10.00	Proposal stage	2010-11
MISCELLANEOUS					
27	Development of Museum and out door lab Fossil Park including Dinosaur Park	One Unit	200.00	Proposal stage	2010-11
28	Colour Xerox	1 No.	3.00	Proposal stage	2010-11
29	UPS-20 kva.	1 No.	10.00	Proposal stage	2010-11
GEOPHYSICAL LAB					
30	P & S wave velocity	1 No.	13.00	Proposal stage	2010-11
31	Shallow seismic reflection unit	1 No.	5.00	Proposal stage	2010-11
Total			603.00		

FOR THE YEAR 2011-12

Sl. No.	Description of Stores	Quantity	Estimated cost in lakhs	Present status	Funds required
PETROLOGY LAB					
1	Advanced automatic Digital Point counter, aided by Computer with software and Digital image analysis	2 Nos.	50.00	Proposal stage	2011-12
2	Magnetic multi sector/ quadrupole ICPMS with LA fitting including installation and establishment of lab.	1 Unit	500.00	Proposal stage	2011-12
3	SEM EDX	1 Unit	150.00	Proposal stage	2011-12
4	XRD with installation cost and establishment of lab	12 Unit	100.00	Proposal stage	2011-12
5	DTA with TG	1 No.	75.00	Proposal stage	2011-12
6	Cathode Luminescence microscope (Total system) for carbonates, diamond) Zircons etc).	50.00	50.00	Proposal stage	2011-12
7	Transmission Electron Microscope(TEM)	1 Unit	100.00	Proposal stage	2011-12
COAL PETROGRAPHY LAB					
8	Reflected light Microscopes	6 Nos.	75.00	Proposal stage	2011-12
9	Instruments for coal analysis (Proximal and ultimate)	1 Unit	15.00	Proposal stage	2011-12
ISOTOPE LAB					
STABLE ISOTOPE LAB					
10	Mass Spectrometer for stable Isotope studies (O,S,C, Rb, Sr, etc.,)	One	200.00	Proposal stage	2011-12
Total			1315.00		

Sl. No.	Description of	Stores	Quantity	Estimated cost in lakhs	Present status	Funds required
PALAEONTOLOGY LAB						
13	Establishment of Museum and Rock Garden (Palaeontology lab)		1 Unit	500.00	Proposal stage	2011-12
14	Tinocular Steozoom Microscopes (Advanced version with Image processing facilities)		2 Unit	60.00	Proposal stage	2011-12
15	Steriozoom Binocular Microscopes		25 Nos.	100.00	Proposal stage	2011-12
16	Binocular Microscope with high Resolution photo camera fitted		1 Unit	19.00	Proposal stage	2011-12
17	Digital Measuring equipment (Anthropometry)		5 Nos.	5.00	Proposal stage	2011-12
18	Dentometric Instrument		5 No.	5.00	Proposal stage	2011-12
19	Lab Accessories (Vacuum pump, Oven, Dryer, Centrifuge, Fume)		1 No.	19.00	Proposal stage	2011-12
20	Generator -100 Kva		1 Unit	5.00	Proposal stage	2011-12
CHEMICAL LAB						
21	XRF with fusion bead machine , Chille,UPS etc.		1 Unit	200.00	Proposal stage	2011-12
22	AAS (GM)		2 Nos.	40.00	Proposal stage	2011-12
23	Establishment of chemical lab with all accessories.		1 Unit	50.00	Proposal stage	2011-12
24	CLEAN ROOM FACILITY (clean 100)		One	100.00	Proposal stage	2011-12
MISCELLANEOUS						
25	Creation of data bank for rock types Of Indian stratigraphy & Meteorites		1 Unit	25.00	Proposal stage	2011-12
26	Charts, diagnostic tables, models, Audio visual systems etc.,		Sets	10.00	Proposal stage	2011-12
27	Standby Generator 750-1000 KVA		One	50.00	Proposal stage	2011-12
TOTAL				1188.00		

BUDGET ESTIMATES

BUDGET ESTIMATES	FINANCIAL YEAR	AMOUNT FOR RS.IN LAKHS.
	Year 2009-10	764
	Year 2010-11	1122
	Year 2011-12	2503
	GRAND TOTAL	4389