

KERALA EDUCATION GRID

Proposal to Launch

KERALA MISSION FOR QUALITY HIGHER EDUCATION

Note submitted to the Government of Kerala and the Board of Directors, IIITM-K

K.R. Srivathsan, Coordinator

Dec. 12, 2005

1. RECALL OF ORIGINAL OBJECTIVES

The original objectives of the Kerala Education Grid are captured in its vision statement, "Enable, Educate and Empower Every Citizen and Community Through Knowledge". How this was to be done was elaborated in the Kerala Virtual University Project Report [1] that was submitted to the Govt. of Kerala in August 2004. The three principal roles of the Education Grid are

- i) **Enabling Role:** Under this we propose to usher develop and/or deploy networks, systems, servers, and technologies that support web-accessible resources generation, dissemination and application in the universities and colleges of Kerala. The approach to be taken in this was delineated in [2]. In summary, the approach should result in such future infrastructure for higher education with a 'Virtual Learning Campus' as outlined in [2] over which we support and service technology enhanced learning and teaching. The project has already resulted in developing several technologies, systems and content development facilities that have been deployed informally in the Education Grid Operations Centre at IIITM-K. A useful example of this is the launch of the Computational Chemistry Portal that provides access to advanced computing facilities to any Chemistry teacher or scholar.
- ii) **Educate Role:** The main objective here is to modernize the processes of instruction and evaluation in ways that enhance quality of education imparted in the universities and colleges. This is being done successfully at the level of awareness building among the college teachers and universities in state-of-the-art developments in several courses through topic specific workshops, brainstorming meetings in new courses developments, and close association with the MHRD's National Programme of Technology Enhanced Learning that is executed by the IITs and IISc for content development. This role is considerably strengthened by the central Education Grid Portal as an interactive meeting ground of concerned academicians and teachers. The project is now conducting several awareness and competency building workshops for the college teachers in the state.
- iii) **Empowerment Role:** This is to support the teachers in the colleges with the help of the Portal based services that connect them with experienced academicians and experts from industry in the different subjects. Any teacher should find live and ready help in synchronous or asynchronous ways to have his/her doubts cleared, access necessary instructional resources and also contribute by sharing their useful experiences with other teachers. At a higher level, experts and academicians should be in a position to contribute by building the requisite competencies in the teachers to teach better and the learners to learn better. Students will also be given wider access to learning resources, discussion forums, exposure to current and

emerging trends and assistance in the form of counseling and career planning. Another form of empowerment role is showcased by the IIITM-K's KISSAN-Kerala [3] project. Here, experts from the Kerala Agricultural University and different agricultural R&D organizations answer or address the concerns of farmers and agriculture related enterprises by their interactions and advice.

Achieving the sum total of the three roles stated above calls for a highly coordinated action by the key players in the higher education system – (i) the Government consisting of the Higher Education Department, Directorates of Higher and Collegiate Education; (ii) the Universities and autonomous institutions; (iii) the colleges management; (iv) involvement of teachers; (v) the Kerala Education Grid project's Resource Centres, (vi) the IIITM-K, (vii) the IT Department through its SWAN and Akshaya connectivity schemes; and (viii) the enthusiastic participation of college teachers. Here below we take a brief review of what Kerala Education Grid has established and how it forms the base for launching the Kerala Mission for Quality Higher Education.

2. RECALL OF ORIGINAL PLAN

We may recall that the present Kerala Education Grid was originally submitted as a Rs. 36 Cr. Five year plan project to modernize and bring quality higher education in the universities and colleges of Kerala. This was to be achieved through Technology Enhanced Learning and Teaching [TELT]. Subsequently, it was approved with an outlay of Rs. 7.31 Cr. To launch the first phase. Of this about Rs. 4.50 Cr. has been utilized in the following several ways.

- i) Establish E-Learning Resource Centres at the four lead institutions - IIITM-K, CET, CUSAT and NIT-C. This has largely been completed. They are equipped with systems and servers to host their e-learning content and state-of-the-art content development facilities.
- ii) Develop content and conduct teachers training workshops by each of the four lead institutions in different subject areas. This has been done successfully done at IIITM-K. The institute has conducted nearly 20 workshops of different kinds in IT subjects and Computational Chemistry.
- iii) Established the Education Grid Operations Centre (EGOC) at IIITM-K. EGOC has developed the now popular and successful advanced Kerala Education Grid Portal – www.edugrid.ac.in. This portal has won acclaim in its concepts, execution and gets no. 1 hit (out of > 17 million pages) in Google under the generic phrase Education Grid.
- iv) The project successfully developed and commissioned the Computational Chemistry Portal at IIITM-K. This was inaugurated by Prof. C.N.R/ Rao, FRS. This has attracted both national and international attention, being the first portal of its kind in providing advanced computing resources access to colleges over the web. This is being followed by a proposal to the UGC to upgrade the initiative as a National Portal for Computational Portal. A similar effort is being started in the area of Computational Geosciences.
- v) The project will bring soon several services through ERNET. The main Point of Presence for the national ERNET backbone access will be established and managed by IIITM-K. This initiative has already resulted in providing Infnlibnet and UGC Infnonet E-Journals access services to the four main universities of Kerala.

- vi) The project developed several advanced concepts and services. The approach taken by Education Grid itself is the first of its kind project in the country, and perhaps anywhere in the world. Besides, it has brought in constructive/quantifiable approaches to notions of Content Quality, technology enhanced instructional design and delivery principles and such others. Besides, the project is in a position to service Digital Library
- vii) The project is working closely with the MHRD's National Program on Technology Enhanced Learning (NPTEL) that is executed jointly by all the IITs and IISc. This project is likely to release content in the form video lectures and web-publishing in over 200 subjects for the Engineering College. The Education Grid is likely to be the first facility to deploy and put this content to use for quality enhancement in the state's engineering colleges.
- viii) A plan to work closely work with the IT Mission's State Wide Area Network has already been put in place. Once the SWAN backbone is in place (expected to be ready in another 10 months), any college in the state can readily connect to the broadband network and access the services of the Education Grid.

The original plan was that it will be run as a project of the Higher Education Department with the four institutions – IITM-K, CET, CUSAT and NIT-C - participating jointly. The IITM-K will coordinate the project activities under the overall supervision of the Education Grid Governing Council chaired by the Principal Secretary, Higher Education. The initial thrust was to introduce e-learning and set up state-of-the-art content development facilities in all the four institutions, conduct workshops regularly for teachers on how to use and benefit from TELT to enhance the quality of education. These objectives have largely been met. We need to move further on with speed to leverage the assets, concepts and competencies built under the Kerala Education Grid project and facilitate the universities and colleges to rejuvenate themselves by bringing in Quality Education at all levels. Hence we propose the launch of the Kerala Mission for Quality Higher Education under the coordination of the Kerala Education Grid/IITM-K.

3. LAUNCHING KERALA MISSION FOR QUALITY HIGHER EDUCATION

The vision of the proposed Mission will be the same as stated for the Education Grid: **“Enable, Educate and Empower Every Citizen and Community Through Knowledge”**. Paying attention to quality in every component area of relevance to imparting education is the key to achieve this mission. The component areas where we have to pay attention to quality are given below.

i) Quality Networking

In recent times, this is getting done through the emerging broadband network offerings from different vendors. Even if a college pays for the network, the real value comes from the quality of services supported over it. This requires coherence in the networking. Here the Education Grid proposes to work closely with the State Wide Area Network (SWAN) initiative coordinated by the Kerala IT Mission at the physical level. At the services level it will offer the solutions provided by the ERNET of the IT Department at the Centre. A package combining the two effectively will be offered to the colleges soon.

ii) Quality IT Infrastructure and Services

Technology supported learning requires a number of systems to develop and host content, support instructional processes, manage programs, provide digital library, accessing web-

resources and such others. Here IIITM-K and Kerala Education Grid have perfected several systems and solutions. The same will be available or accessible by alternative services deployment and delivery models for the colleges.

Besides attending to the infrastructure, the proposed mission will support active services for digital libraries, host content acquisition consortium to negotiate with database and e-journals aggregators for providing effective mix of relevant publications for different institutions.

iii) Quality Content Development and Maintenance

Here the NPTEL project of MHRD will shortly (in about six months time) fair amount of content in over 200 courses for the engineering colleges. Besides Kerala Education Grid has perfected methods of structuring and accessing content available from open sources such as the Open Courseware of MIT, numerous professional bodies, universities and research organizations. They will be made available as supplementary content of value and relevance in teaching the different subjects. Besides the Education Grid will propose to the UGC and other relevant bodies to support content development in the Arts, Sciences and other subjects not covered by the NPTEL.

iv) Quality Capacity Building

This is a major urgent need. The Mission will promote training in advanced competencies in e-learning, services management, quality monitoring, applications of computational tools and training or entrepreneurship development needed to build and service the infrastructure, services, instructional management and such others of relevance in the universities, colleges and industry to achieve the objectives of the mission.

v) Quality Instructional Processes

The understanding and practice of quality instructional processes by the different stakeholders – the teachers, educational management, students and the universities is the key to the success of the mission. Here we propose to launch Open Supported Learning, or, blended learning methodologies across the state supported by the Education Grid. Experiences of major successful parties like the UK's Milton Keynes Open University systems will be solicited and an extensive support system and people's network supported over the network will be installed and managed to achieve this objective.

vi) Quality University and Education Management Systems

Our present university system with affiliate colleges has to be modernized. For example curriculum upgrade and evaluation processes have to be aligned with course objectives. While the concept of affiliate colleges has been a serious problem as it stifles innovation in the different colleges, it can be turned into an asset if the universities are changed to being enablers and mentors of quality educational processes. Achieving this will need building consensus by several stakeholders and constructive demonstration of each such process and its management before the universities accept and commission such services to themselves and their affiliate colleges.

To achieve the above the Education Grid will as the forum for the different stakeholders to come together, set up demonstration systems, help develop and deploy such systems in the educational institutions and promote closer government, industry and academia interactions. The process of bringing quality higher education as stated above involves actions at many level as that have to be coordinated effectively. It involves modernizing present systems, replacement of some outdated systems by modern ones and orienting the systems and processes of today to those

matching with needs of tomorrow.

We propose that the present Kerala Education Grid is upgraded to the level of Kerala Mission for Quality Higher Education to effectively achieve the above tasks collectively by the different stakeholders concerned.

The Mission will be coordinated by IITM-K through its Education Grid Project under a Consortium driven approach. The Mission will help mobilize resources, build healthy public-private partnerships for resource mobilisation and capacity building, act as forum to bring coherence to the several initiatives that are already on or being undertaken. The Mission will be driven by a central Education Grid Consortium of colleges interested in availing the services. This Consortium will form part of the Kerala Mission for Quality Higher Education.

Dated: 14 Dec. 2005

References:

1. Kerala Virtual University Project Report submitted to the Department of Higher Education, Govt. of Kerala.
2. K.R. Srivathsan: "Future ICT Infrastructure for Education" paper available from the Publications pages of Education Grid portal – www.edugrid.ac.in
3. KISSAN-Kerala Project: Visit www.kissankerala.net

Remark: A number of documents of relevance to the Mission are available under the Publications pages of the Kerala Education Grid portal.